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CONTENTS

For the Home
Electric Irons—Combination Steam and Dry Type 5
Electric Room Heaters of the Fan Type 9
Hand Vacuum Cleaners 13
Double-Glazed Windows 21
Copper-Clad Stainless Steel Cooking Utensils 25
Electric Water Heaters 27
Automobiles
Subscribers' Reports on Experiences with the New Cars 15
Fluid Drives and Automatic Transmissions 19
Misleading Advertising of Motor Oils 24
Clothing
Men's Undershirts and Shorts 16
Test of Another LongWear Shirt 33
Radio and Phonograph Equipment
Record-Player-Amplifier-Speaker System 18
Wear Tests of Two Pickups 31
Photography
A Color Film 8
War-Surplus Motion Picture Camera 20
Miscellaneous
Plastikool Crib Sheet 26
The "Breath-o-lator" 34
Features
Off the Editor's Chest 2
The Consumers' Observation Post 3
Ratings of Motion Pictures 35
Phonograph Records ..... Walter F. Grueninger 39

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Off the Editor's Chest

THE personal experience of CR subscribers with the various products which they buy and use is often very revealing, and we are always glad to receive our readers' comments and suggestions. About two months ago, for example, when we ran an article on anti-freeze, several reports were received from subscribers that some recommended brands listed as containing ethanol, the approved type of alcohol anti-freeze, were now being offered in cans that declared the presence of 90 percent or more of methanol (wood alcohol), the fumes of which are extremely poisonous. The composition in several cases had apparently been changed in the interval between our purchase of samples and the completion and printing of our report on the subject. This prompt action on the part of subscribers in sending us important information about the changed product was extremely helpful.

On the other hand, reports of subscribers' personal experiences with appliances or garments do not and cannot, alone, provide the proper basis for ratings of products by CR. In CR's test of men's shirts, some 16 brands were examined for thread count and tensile strength, and were measured for shrinkage after laundering, and subjected to 20 launderings (unless noticeable wear was apparent before that number was completed). One particular make was rated *C. Not Recommended*, chiefly because the appearance of the collar was poor after five launderings and very poor after 12 launderings. A CR subscriber wrote to protest that our findings were quite at variance with her own experience, since her husband, and a friend of his who had worn these shirts for many years, had found them quite satisfactory. In the light of her experience, she felt that we "were definitely wrong" and she thought that we "should be big enough to admit it."

Since our listing of the shirt reflected merely the performance of the shirt when subjected to the same procedures as 15 other makes, we explained to the lady that our report was based on specific tests to determine the measured properties of the article and not on personal judgment or a private opinion on the shirt in question; that the ratings were comparative and relative to other shirts studied at the time, and did not depend on the judgment of an individual. There was no suggestion in the subscriber's letter that she had even had an opportunity to compare her husband's personal experience with any other brand of shirt let alone 15 other brands at the same time and under the same controlled conditions as did CR's test.

The lady, happily, understood the reasoning, and was able to see that we were not rejecting her experience with one brand but that we were making a point about an individual user's having insufficient recent experience with other brands than one or two, and bringing out the fact that favorable experience with one brand could not invalidate

(Continued on page 26)

Scientific and Technical Experts and Editors: F. J. Schlink, R. Joyce, M. C. Phillips, A. R. Greenleaf, Charles L. Bernier, and Dwight C. Aten. Editorial Assistants: Mary F. Roberts and B. Beam.

Symbols used to indicate sources of data and bases of ratings: **A**—recommended on basis of quality; **AA**—regarded as worthy of highest recommendation; **B**—intermediate with respect to quality; **C**—not recommended on basis of quality; cr—information from Consumers' Research's own tests or investigations; **1, 2, 3**—relative prices, **1** being low, **3** high. Note that price and quality are completely differentiated in CR's listings; **a quality judgment is independent of price;** 48, 49—year in which test was made or information obtained or organized by the staff of Consumers' Research.

It will be advantageous if you will, whenever possible, send prompt notice of change of address at least 5 weeks before it is to take effect, accompanying your notice with statement of your old address with name in full. At least a month's notice must be given in any case. This rule, however, regarding long advance notice does not apply to military personnel.

**CR will, of course, gladly change addresses for men and women in the services as often as required by changes in station and other circumstances.*

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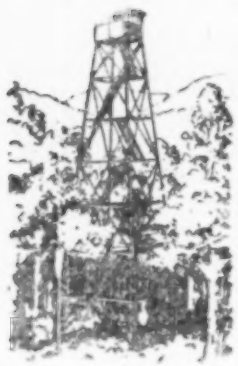


The Consumers' Observation Post

ANTI-FREEZE manufactured by fly-by-night companies is under heavy fire by a number of interested groups of businessmen and state officials in Minnesota. Some 15 phony anti-freezes have been sold or offered to Minnesota jobbers, reports National Petroleum News. One jobber purchased 300 gallons before he discovered that the product was of a type unsafe to use in a car. The analysis of one product showed that it contained 34.6 percent salt. A salt solution should not be used in any automobile radiator, because of its corrosive effect on the motor and the fact that it is a conductor of electricity and so interferes with the ignition system. Several fraudulent brake fluids have also been discovered that would crystallize at a temperature of 10° below zero which, the journal points out, would prevent the fluid from entering the tubing and result in failure of braking pressure. Motorists in other states where low temperatures prevail may well take warning; they will need to be extremely careful not to buy any unknown or doubtful brand of anti-freeze or brake fluid.

* * *

FLUORESCENT LIGHTING, which has become quite fashionable, particularly for home kitchens, often has an extremely unflattering effect on a woman's skin. An interesting study reported by Samuel G. Hibben of Westinghouse Electric Company indicated that of three different "shades" of white fluorescent lights, the Soft White F type was found to give the best effect on tanned and untanned skin, both with and without make-up. The Daylight F and White F fluorescent lights produced effects that were rated from acceptable to poor with one exception; White F on red-sunburned skin gave a tanned appearance that was considered pleasing.

* * *

THE AMOUNT OF MEAT EATEN DAILY may be a factor of far-reaching importance in determining a child's susceptibility to tooth decay, according to the findings of an extensive survey reported by Dr. Teunis Ockerse, chief dental health officer of the Union of South Africa, to a dental health conference. Dr. Ockerse pointed out that it was important too that the mother's diet during pregnancy and lactation should include large quantities of meat. The South African examination of over 78,000 school children indicated that the children of the northwest region who lived in a meat-producting area where families were accustomed to eat meat three times a day had the best teeth, while those who lived in the coastal areas where the diet consisted chiefly of fruit and vegetables had the poorest.

* * *

PRICES OF MEN'S SUITS are coming down. Suits that were expected to retail at $50 have been reduced $10 in some sections, reports Men's Wear. Retailers are increasing their demands on manufacturers for merchandise that can be featured in cut-rate sales. One men's clothing chain showed a 26 percent decline in September 1948 sales over the same month the previous year, evidence that men just will not pay the high prices asked.

* * *

IN BUYING A SECONDHAND AUTOMOBILE, make certain that your title to it is good, especially if you have any extensive repair work done. The unwitting purchaser of a "hot" car, reported Motor Age recently, had spent considerable money on repairs for it before the police finally located and restored the car to its rightful owner. In a suit to recover the amount spent on repairs brought by the unlucky purchaser, the New York court ruled that the repair bill could not be recovered either from the police or the true owner, holding that

the repair bill was collectible from the true owner only when he himself had authorized the job.

* * *

THE FEDERAL EXCISE TAX OF 20 PERCENT is held responsible for the slump in sales of several commodities, particularly furs and cosmetics. It is reported that at least one bill to repeal or modify the tax on cosmetics during the coming session of Congress is under consideration, and women will be well advised to remind their Senators and Representatives that reduction of the present excise taxes will be an effective means of reducing prices on a number of products, including clocks, baby oil, certain fountain pens, luggage, furs, and cosmetics. Why in the name of common sense should there still be a tax of 20 percent on a woman's pocketbook, which is certainly not a luxury--except possibly in the upper price brackets? There has been a lot of talking in high circles about the need for reducing the cost of living, and the reduction of some of the many taxes on so-called luxury items is a practical way of "implementing" such campaign promises. Legislators and people often have quite different ideas of what is a luxury.

* * *

CAR STYLING, like clothes, runs in cycles, in the opinion of an automobile expert reported in the Society of Automotive Engineers' Journal. The current trend is described as "blubber" styling, and the bulges are intended to suggest luxury and spaciousness. They are not functional, however, and it is predicted that when the extreme is reached, there will be another swing of the pendulum and a return to more severe and practical lines.

* * *

HIGH BUILDING COSTS that prevail throughout the country are partly due to antiquated building codes and cost-padding regulations. It is expected that widespread adoption of up-to-date codes recently worked out by the Building Officials Conference of America (51 E. 42 St., New York City) will cut as much as 10 percent from present initial construction costs, and save another 5 to 10 percent in maintenance and upkeep charges, according to one of the authorities of B.O.C.A. code group in an interview by The Wall Street Journal. An abridged edition of the forthcoming 445-page volume on new building codes is currently available without charge to municipalities desiring it. The full volume is expected to be ready later this year.

* * *

SORBTEX, a chemical solution for treating towels, was the subject last year of an intensive scrutiny by the Federal Trade Commission. The product was found to be water, 1000 parts, with monosodium phosphate, 4 parts, and slaked lime, 1 part (not less than 97% $Ca(OH)_2$). The company's advertising claimed that the application of the product made fabrics absorbent and faster in drying. The Commission found, however, that any marked increase in absorbency of treated towels over those which were untreated obtained only in unlaundered towels and that once the towels were laundered there was no great difference in performance. The Commission also found that the treated towels would not dry faster as claimed and, on evidence supplied by the National Bureau of Standards, that the treatment would not increase the tensile strength (prolong the life of the towels) as had been claimed.

* * *

EAT A REGULAR MEAL AT LUNCH and you won't need a snack two or three times in the afternoon, is the sound advice of one of the patrons of the well-known Bernard's Grill on U. S. 40 at Colfax, Calif. The hearty diner pointed out that although such a lunch cost more, it was really cheaper than supplementing a light meal with a milk shake at two, coffee and pie at three, and something else at four o'clock. He might well have added that the balanced full meal is likely to be better for health than a skimpy one followed by snacks, usually something sweet.

* * *

STANDARDS FOR THE PROPER USE OF TESTIMONIALS in advertising have now been set by the National Better Business Bureau. Briefly summed up: the testimonials should be genuine, honest, sincere, competent, contain no misstatement of fact, and should reflect the current opinion of the author on a product cur-

(Continuation of this section is on page 37)

Electric Irons

Combination Steam and Dry Type, and the General Mills Steam-Ironing Attachment

A NUMBER of letters have been received from protagonists of steam irons, some of whom have roundly criticized CR's findings on these appliances. One critic held that our comments on the deficiencies of steam irons were just plain ridiculous; while a more moderate critic discussed her weekly experience with a *Silex* which she used as a steam iron for the greater part of her wash with very satisfactory results.

A report of the results of a recent extensive series of tests on a group of irons which included three combination steam and dry irons, two conventional dry irons, and one conventional steam iron, appeared in the March 1948 Journal of Home Economics. This study reported work done by Miss Harriet B. Breckenridge and Dr. Louise J. Peet, covering measurement of energy consumption in watt-hours for ironing the same items with dry and steam irons, determining the time used for ironing samples, and a comparison of quality of ironing results based on the judgments of five persons. Three charts summarizing the findings of the tests are reproduced here, with permission of the Journal.

The home economists concluded that combination steam and electric irons have a useful place in the home but that their use as steam irons was to be preferred only for ironing woolen pleats. The device used as a dry iron was preferred for ironing all the other fabrics which required more moisture than the steam iron could supply.

The researchers found also that electrical energy consumption for ironing all the samples ironed, except wool and wool pleats, was considerably higher when irons were used wet than when they were used dry.

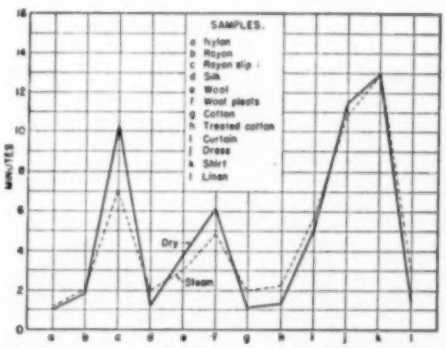


Chart 2—*Comparative time for ironing samples with dry and steam irons.*

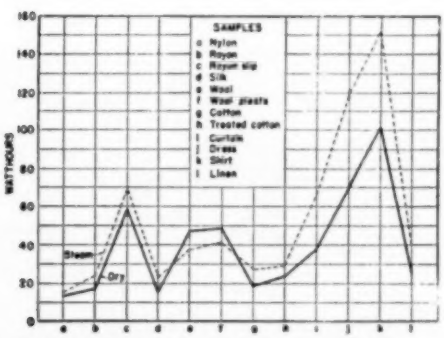


Chart 1—*Comparative watt-hour consumption for ironing samples with dry and steam irons.*

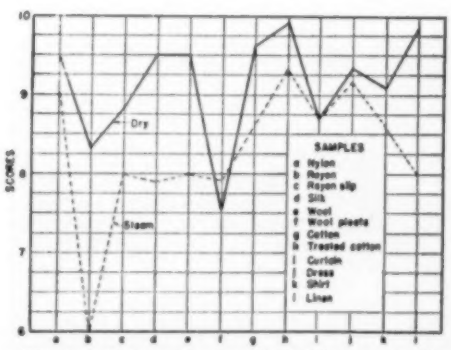


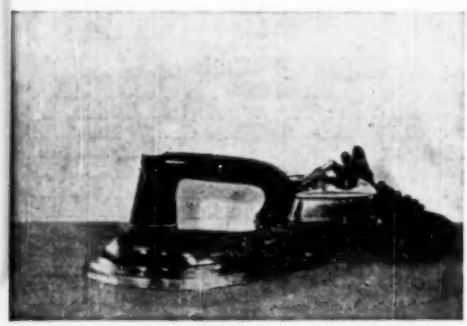
Chart 3—*Comparative scores (by 5 judges) on samples ironed with dry and steam irons.*

CR's Tests

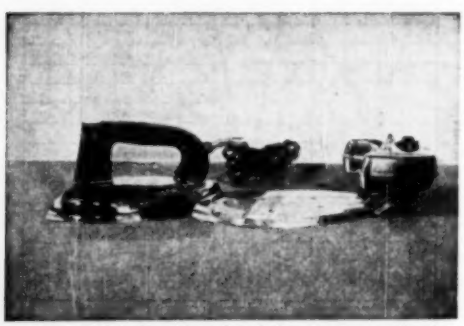
Three combination steam and electric irons and a steam ironing attachment were studied for rating by CR. As in previous cases, the irons were given laboratory tests to determine their suitability for use on various types of material; the results, in general, bore out the findings reported in the Journal of Home Economics. Actually, in doing the ordinary household laundry, the combination iron would normally be used with steam only for those pieces on which it could do a better job than the iron used dry, a procedure more economical of both time and electrical energy than attempting to do the whole ironing with the iron used either wet or dry throughout. It would seem, indeed, that the development of the combination steam and dry electric iron is a recognition of both the weaknesses and the advantages of steam irons in that the new appliance permits the user to do both kinds of ironing with one iron. The instruction booklet which comes with the *General Mills Steam Ironing Attachment* makes it clear that the steam iron should not be expected to do a good job on all kinds of materials and states that fabrics which require moderate or large amounts of moisture "do not respond satisfactorily to steam ironing" and that starched clothes ordinarily do not allow steam to penetrate sufficiently to give satisfactory results. The booklet also mentions that closely woven fabrics and those with moisture-resistant surfaces do not respond satisfactorily to steam ironing and lists the types of material which can best be ironed with steam and without. This appears to be a useful and intelligent mode of approach to the problem of marketing and writing instructions for a device that some manufacturers have promoted too optimistically.

One young housewife writing to CR points out that when couples just starting housekeeping can't afford both an electric and a steam iron, they can economize by purchasing a combination iron. It should, of course, be possible to make and market a combination iron to sell cheaper than two separate complete irons and such a price saving may be afforded by some combination irons, but the price of the *Omar Fabric-Master* was $21.95, which represents practically the price of two separate irons and would afford little or no price saving.

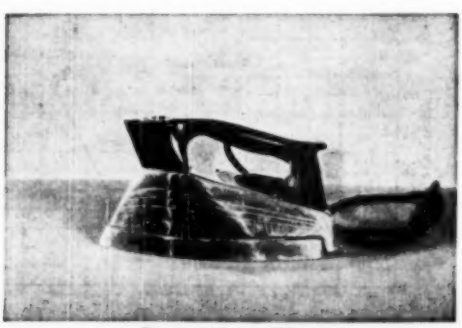
The chief disadvantage of most combination irons is clumsiness in use as compared with a conventional electric iron. The General Mills Company has overcome this fault in part by developing a separate steam attachment to be fastened to their *Tru-Heat* iron. The attachment can be put on and taken off in a moment, as desired, and makes it possible for owners of the *Tru-Heat* iron to have both types of irons without being bothered with the clumsiness of the big combination irons for dry ironing. The



General Mills Tru-Heat electric iron and steam ironing attachment, assembled.



General Mills Tru-Heat electric iron and steam ironing attachment, separated.



Monitor, Model STEI-1

General Electric, No. 119F30

Omar Fabric-Master, Model 200-A

Tru-Heat assembly looks bulky but was not found inconvenient in actual home use tests by two staff members of CR who own *Tru-Heat* electric irons. Workers in a commercial testing laboratory who worked with the iron, however, did consider the combination heavy and unwieldy to use. Users pointed out one disadvantage which seemed inherent in the steam attachment type of iron. When changing from dry to wet ironing, it was found necessary to allow 4 or 5 minutes to heat the attachment sufficiently to produce steam. If this was not done, some dripping of water occurred before steam flow started.

The combination steam and electric irons began steaming in from 2 to 5 minutes, whereas those reported on in January 1946 needed a 7- to 8-minute heating period before steam started flowing. This improvement in the new irons is due largely to changed steam-forming methods. In the older irons the whole reservoir full of water was heated until it steamed; in the newer designs, water falls in drops on a hot surface to form steam which emerges through holes in the bottom, almost immediately. (The heating-up period before flow of steam starts in these new irons is the time necessary for the temperature of the metal heating surface to be raised to the right temperature, which, of course, takes far less time than would be needed to heat both the metal of the iron and a quantity of water to the steaming point.)

All of the irons successfully withstood the standard 900-volt breakdown test and had leakage current (a measure of shock hazard) within accepted limits. When the irons were used as dry irons, normally satisfactory ironing results were obtained; when they were used as steam irons, only the woolen samples were well ironed, except in the case of the *Monitor*. Ironing results obtained with the *Monitor* iron were of particular interest. When the control settings were such as to give the greatest flow of steam, and the highest temperature, satisfactory results were obtained on most of the fabric test pieces. This bears out the statement which has often appeared in print that much of the trouble with steam ironing is lack of sufficient moisture, and seems to indicate that if a steam iron could be developed which would deliver enough moisture for a long enough period, without at the same time being unwieldy or troublesome to keep filled, the appliance could be much more generally useful.

All the irons were thermostatically controlled. Sole plates of all four irons reported on were of aluminum, advantageous for quick heating, but more susceptible to marring and scratching than chrome-plated steel.

In the ratings, the combination irons tested are rated in relation to each other and to other irons of the same type previously tested. Because of their relatively great bulk and weight, the best of them would be rated *B. Intermediate* if they were to be rated as conventional electric irons, but it was decided to rate the combination irons as a distinct type as a guide for those who know from their own experience or that of friends or relatives that they can make effective use of a combination-type electric iron. Since rated and measured wattages were approximately the same in each case, only wattage ratings are shown in the listings.

Ratings are cr49.

A. Recommended

General Electric, No. 119F30 (General Electric Co., Bridgeport, Conn.) $17.95 plus tax. Weight, full, 4 lb. 13 oz. 1000 watts. Necessary preheating period, 2 minutes. Water capacity, about 1 cup (½ pint). Duration of steaming at highest setting, approximately 30 minutes, but after 25 minutes, steam flow became too low. Steam issued in regular pulsing flow with little or no water drip. The iron was light and fairly easy to handle either as a steam or as a dry iron. Heat control lever was easily operated and clearly marked. Handle became somewhat uncomfortably warm, because of small clearance between shell and handle. **2**

Monitor, Model STEI-1 (Monitor Equipment Corp., 640 W. 249 St., N.Y.C.) $17.80. Weight, full, 3 lb. 11 oz. 1000 watts (exceptionally light for a combination iron). Necessary preheating period, 2 minutes. Water capacity, about 1 cup. Duration of steaming at highest setting of steam control knob, 14 minutes, but steam flow became too low after 8 minutes. A needle valve provided continuous regulation of the rate of generating steam, over a range of five settings from 0 to 5. The iron was light and easy to handle as either a steam or dry iron, but the handle was somewhat too small for some users. The heat control knob was easily operated and clearly marked. Ironing results with this iron differed from all the other combination irons, for it was possible to obtain satisfactory results on most of the fabric test samples, including cottons, when using the *Monitor* as a steam iron with the steam control knob at the 5 (highest) setting, and using the cotton-linen temperature setting. This, however, reduced the satisfactory steaming time to 8 minutes, which many, perhaps most, users would find impracticably short. **2**

B. Intermediate

General Mills Steam Ironing Attachment for the *Tru-Heat GM 1 B* Iron (General Mills, Inc., Minneapolis 13) $7.95 for attachment; *Tru-Heat* iron (separate unit, 4 lb.), $12.50 including federal tax. Weight of iron and attachment, full and in place, 6 lb. 10 oz. (heavy). 1100 watts. Necessary preheating period, 4 to 5 minutes. Water capacity, about 1½ cups. Duration of steaming at highest setting, 42 minutes, but steam flow became too low after approximately 30 minutes. The flow of steam was found somewhat erratic in laboratory tests but two home users did not report this difficulty. The steam iron assembly was found heavy and clumsy in laboratory ironing tests; on the other hand, two home users did not object to it on that score. Handle remained cool. The heat control knob was easily operated and clearly marked but became uncomfortably hot; the steam control knob was easily operated; water tank plug was found somewhat difficult to remove. The steam attachment was easy to fasten to the iron. The *General Mills Tru-Heat* electric iron was rated *A. Recommended* (col. 14, '48-'49 *ACB*). The steam-ironing attachment for that iron would probably merit the same rating if the preheating period required was reduced by the manufacturer. **1**

C. Not Recommended

Omar Fabric-Master, Model 200-A (Omar Appliance Mfg. Co., St. Louis) $21.95 Weight, full, 5 lb. 5 oz. 1000 watts. Necessary preheating period, 4 to 5 minutes. Water capacity, somewhat more than 1½ cups; stainless steel boiler. Duration of steaming at highest setting, 35 minutes. Iron was somewhat heavier than the *GE* and was found awkward to handle, partly because of small uncomfortable handle. Heat control knob became too hot to touch during use because of its location on the shell. Handle became somewhat uncomfortably warm in use. This iron had to be emptied in order to change from steam to dry ironing or vice versa, a great disadvantage. **3**

Keen—A Color Film

SEVERAL subscribers have written in asking for an opinion of *Keen Color Film* which has been extensively advertised in the popular photographic magazines at prices including developing only about 15 percent less than are charged for *Ansco* color roll film — 60 cents for No. 127; 99 cents for No. 120 or No. 620; plus 75 cents for developing. A No. 120 roll of this film was purchased direct from Keen Photo Products, Inc., 2746 Nostrand Ave., Brooklyn 10, N. Y. Exposures were made at f:11 and 1/50 second as indicated for existing light conditions and a Weston speed of 32 claimed for the film; another set of exposures was made at f:8 and 1/50 second, or at double the exposure claimed necessary by the promoters of *Keen Color Film*. The film was sent to the manufacturer for processing. Upon examination of the finished film, which was not returned for over five weeks, it was found to be grossly underexposed. The degree of underexposure was such as to indicate that the actual speed was about Weston 3 or 4, or about one-eighth of the value claimed by Keen Photo Products, Inc. The film base was much heavier than that of standard roll film, and edges were rough, indicating that it had been slit, not very expertly, from wider film, probably government surplus. It would seem that *Keen Color Film* was not a first-grade color film, and that the distributor was not justified in claiming, as he did, a Weston speed of 32 (daylight).

Fan-Type Electric Room Heaters

This article includes a general discussion of the different methods by which heat is transferred from the sources of heat in the home to the air, walls, floors, etc.; also a comparison of the relative speed of heating of the fan-type electric heater with the more conventional "bowl-type" and an electric space heater of another common type.

HEATING EQUIPMENT used in the home transfers heat by one of three methods: conduction, convection, or radiation; or by a combination of two or three of these.

When heat is to be transferred by conduction, it is necessary that the heat source be in direct contact with the material to be heated. The flow of heat from a stove top into a kettle is chiefly by this method. In heating by convection, the delivery of heat is primarily through the flow of air which itself is directly heated by the electrically heated or other hot object, by conduction and convection. The warmed air circulates to the cooler areas where the heat which it carries is given up to other volumes of air and to the walls, furniture and other objects in the room, including clothing of the occupants.

The circulation can be accomplished either by natural means or by "forced draft." In the former method, the heated air expands and thus becomes lighter than the cooler air. This results in the formation of a "natural draft" or chimney effect. In the second method, a fan or blower is utilized, and usually is so mounted that it pushes cool air past the heated element.

When objects are heated by radiation, the surrounding air does not function as the transfer agent, and the heat transfer would take place whether air or other gas were present or not. (The earth is warmed by radiant heat from the sun acting through an enormous distance in space which is completely devoid of air.) The amount of heat transferred by this means is mainly dependent upon the temperature difference between the source of the heat and the particular object which is absorbing the radiation. High temperature is important, for a surface at 1540°F will radiate over 100 times as much heat per square inch as a surface at 220°F (about the temperature of a steam radiator). Likewise, an electric heater element which attains a bright cherry color, for instance, will radiate more heat into a room than an element which is not noticeably "red-hot," if both have the same surface area.

An electric heater of the so-called radiant type utilizes the principles of convection and radiation in heating a room. A heater-fan combination utilizes the same principles, but the fan permits the amount of heat transferred by convection to be greatly increased as compared with the radiant type of heater, in which nearly all the heat is transferred by radiation.

With the radiant heater, the user will get some sensation of warmth whenever he stands where he can see the heater element. This sensation will vary in intensity depending upon his distance from the element, falling off rapidly as the distance increases; it is dependent upon the efficiency of the reflector used and what is known as the "color temperature" of the hot element. Although it is true that objects which intercept the radiated heat rays, be they furniture or the walls of a room, are heated and in turn pass some heat on to the adjacent air, heating by this direct-radiation means is comparatively slow. Thus heaters of the radiant type are efficient only in warming a limited area of a person's body, and this is all they can do effectively in a brief period of time. The radiant heater, therefore, has comparatively little value in large spaces or where persons are moving about and so only infrequently or accidentally come into the path of the radiated heat.

The heater-fan combination transfers a considerable proportion of the heat energy available to the air which is forced repeatedly past the heater element. Fan heaters of the electric type thus have usefulness in quickly heating the air of a small room (or of a larger room through a small temperature rise) and raising the temperature of the air in the room in a time which depends directly upon the amount of energy (watts) which the heater takes and also on rate of air movement. Their com-

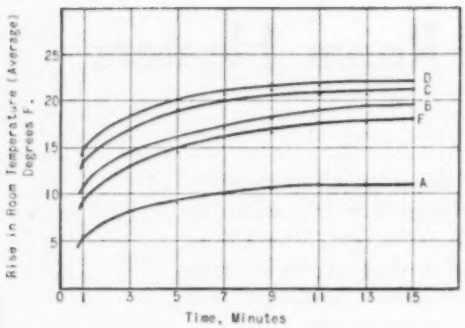


Figure 1 — The results of the tests to determine the room-heating speed of 5 of the heater-fan combinations are shown in the graph above. The points plotted are the averages of the readings of 7 thermocouples placed along a vertical line 1 ft. in front of the fan and at distances varying between 3 in. and 48 in. above the floor. The letters identifying the lines refer to the following named heaters in decreasing order of their relative speed of heating.

D—*Kenmore*
C—*Surf Season-air*
B—*Everhot Air-Flo*
F—*Air-D-Lux*
A—*Thermador*

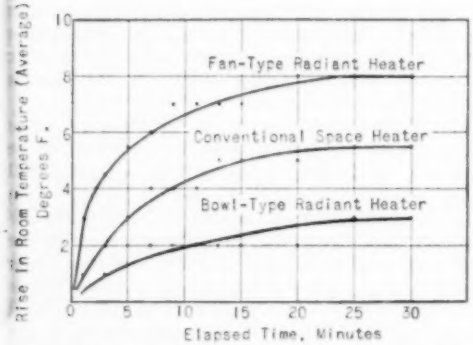


Figure 2 — Graph showing comparison of *speed of heating* a room, for three different types of electric heaters. The points plotted are the averages of the readings of 8 thermocouples, in this instance, placed at various parts of the test room (19½ x 9½ x 8½ ft.) to determine its average air temperature. (The Conventional Space Heater was of the nichrome ribbon, low-temperature type.)

parative usefulness is therefore best judged by the speed with which they distribute the heat. Such appliances are admittedly useful, but much of the advertising and salesmanship applied to them encourages the consumer to lose sight entirely of the fact that all such heaters *are extremely expensive to operate* compared with the more common heaters using coal, gas, or oil, except where electricity rates are exceptionally low or climate dependably mild. A 1600-watt heater, for example, would consume 4800 watt-hours in a 3-hour period at a cost of approximately 17 cents in regions where average rates for electricity obtain The same amount of heat could be supplied for a fraction of this amount by coal or oil, for example.

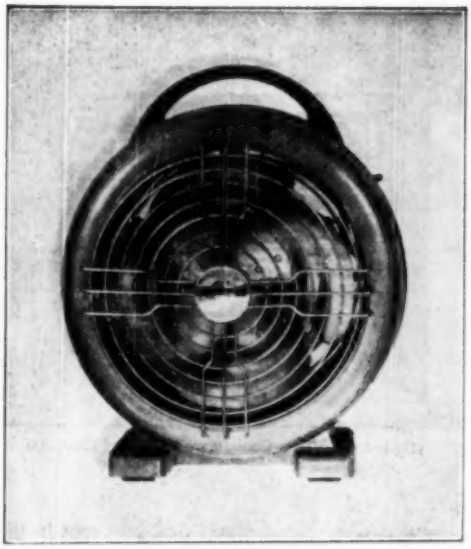
Another point frequently forgotten by purchasers of electric heaters is that their use often results in applying an excessive load to some part of the household wiring, and may result in leading the homeowner to overfuse the line, which involves a fire hazard. This is especially true of heaters which consume a considerable amount of electricity.

CR's tests of the six blower-type electric room heaters listed included measurements of the distribution of air velocity and temperature and speed of heating. For comparison purposes, a room-heating ability test was included using a fan-type radiant heater, a space heater of a type that does not use a blower, and a bowl-type (reflector) radiant heater.

If the reader will refer to Figure 1, and note the average rise of room temperature attained after different intervals of operation for the heaters, he can judge relative speeds of heating. It is shown, for instance, that the *Kenmore* raised the average measured temperature of the air in the test room 15° in one minute while the *Thermador* raised it only 5.5°, although both were dissipating about the same amount (1600 watts) of electrical power. For this test, thermocouples to read temperatures were placed 12 inches from the air outlet grille of the heater under test and spaced vertically 3, 6, 9, 12, 15, 18, and 48 inches (breathing level) from the floor. Because electric heaters are practically 100 percent efficient in that all the electrical energy input is converted into heat, there is little doubt that *eventually* those of the radiant type would create equal *average* temperature rises. For practical purposes, a well-designed fan-heater should make the room air much warmer in far less time, and this, and the far greater uniformity of room temperature achieved, are the primary reasons, as already mentioned, for purchasing the fan-type heater in preference to the better known radiant or "bowl-type" heater.

To provide a basis for comparison, other tests of a similar nature were made, using equal electrical inputs, on the *Surf Season-air* fan heater, a conventional space heater without fan, and a bowl-type radiant heater. The results expressed in Figure 2 show the differences in speed of heating quite graphically.

Several of the fan-heaters listed were also advertised as being excellent substitutes for good electric fans. Because the air flow from the heater fans was in all cases so limited, CR feels that none of those listed except possibly the *Kenmore* and *Surf Season-air* are a desirable purchase, *if the consumer places much importance upon the operation of the device as a fan for summertime use.* A standard electric fan would almost certainly give better satisfaction (greater breeze output by far) for



Sears' *Kenmore*

Surf Season-air, Cat. No. 590-1

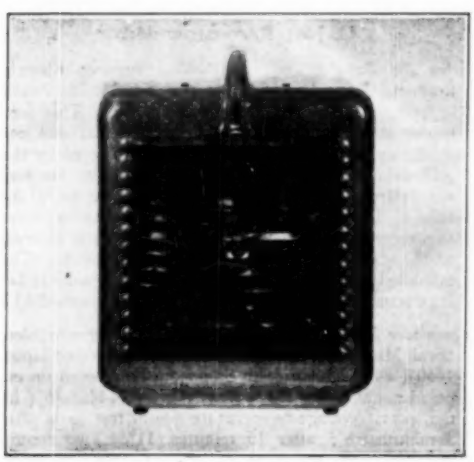
summer cooling. The breeze output of the *Kenmore* fan-heater, for instance, though approximately 12 times that of the *Everhot*, was only about ½ that of a good electric fan of the usual room-cooling type with a 10-inch blade.

Leakage current was within accepted limits, except in two cases as noted, under high humidity conditions; all of the heaters passed the proof-voltage test satisfactorily. The *Super Air* was not listed by the Underwriters' Laboratory. All were for operation on the usual (60 cycle, 105 or 110 to 120 volts) alternating current only. Rated input in watts is followed in parentheses by measured input in watts.

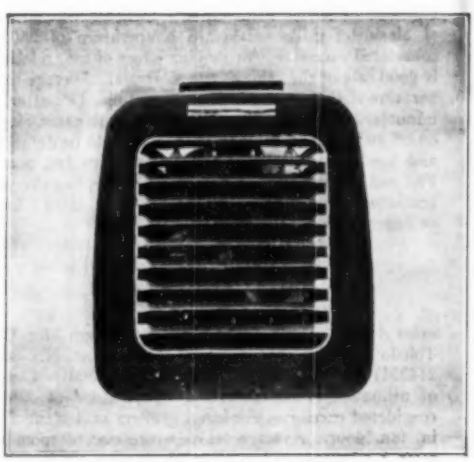
Ratings are cr49.

A. Recommended

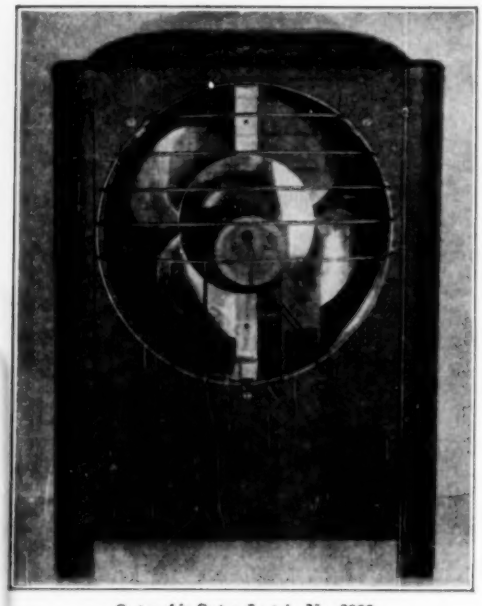
Kenmore (Sears-Roebuck's Cat. No. 34—07204) **$15.95.** Power input in watts, 1600 (1680). No excessive temperatures noted on exposed metal parts. Air-moving



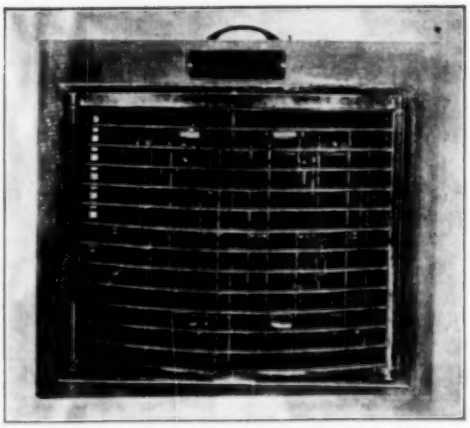
Thermador Heater Fan Model HF 161



Everhot Air-Flo, Model 910



Super Air Super-Lectric, No. 2000



Air-D-Lux, Heater-Cooler-Cooker, Model DL-C300

effect of 4-blade 8-in. fan, good, as fan-heaters go. Average temperature rise of test-room air after 3 minutes' operation, 18.5°; after 15 minutes', 22°. Three-position switch marked Off, Cooling, Heat (action of appliance — as with others in this class — as a cooling fan is poor when compared with a regulation room-cooling electric fan). Grille was not fastened securely. **2**

Surf Season-air, Cat. No. 590-1 (GM Laboratories, Inc., Chicago) $24.95. Power input, 1320 (1430). Center of air-outlet grille reached a temperature of 240°F, considered excessive. Air-moving effect of fan, relatively good (about the same as the *Kenmore*). Average temperature rise of room air after 3 minutes, 17°; after 15 minutes, 21°, a little below *Kenmore* in both cases. Single on-off switch used. 3-blade 10-in. fan could be detached and used as separate unit complete with fan guard. Fan and heating wire, as a unit, were exceptionally well protected against possible intrusion of a child's hand or finger. **3**

B. Intermediate

Everhot Air-Flo, Model 910 (The Swartzbaugh Mfg. Co., Toledo 6, Ohio; Montgomery Ward's Cat. No. 86—2143M) $12.95. Power input, 1320 (1360). Center of air-outlet grille reached a temperature of 230°F, considered excessive. Air-moving effect of 4-blade 5½-in. fan, poor. Average temperature rise of room air after 3 minutes, 14.5°; after 15 minutes, 19.5°. Not equipped with a switch (an importnat lack). Internal electrical connection to fan was a weak spot in the wiring, and might become a hazard after considerable use, as no insulating bushing was used. **1**

Air-D-Lux, Heater-Cooler-Cooker, Model DL-C300 (Warren Simpson Corp., Mount Vernon, N.Y.) $39.95. Power input, 1320 (1525 at mid-position [heating] of control). No excessive temperatures noted on exposed metal parts. Air-moving effect of 4-blade 8-in. fan fair. Average temperature rise of air in room after 3 minutes, 13°; after 15 minutes, 18°. Had on-off switch, hot-cold switch, and cooking-heating-cooling control. Fan was well guarded. The cooking feature of this heater was not tested. For this use, the unit was to be placed on its back and the hinged front grille raised. This would make available a cooking surface approximately 9 in. x 12 in. Shock hazard present. **3**

C. Not Recommended

Super Air Super-Lectric, No. 2000 (Superior Electric Products Corp., Cape Girardeau, Mo.) $11.25. Power input in watts (calculated), 1345 (1240). This fan-heater made use of a heating element that was not solidly mounted and that was poorly protected by the grillwork. No switch control. 4-blade 8-in. fan was not tested for air-moving property, owing to motor failure. In the sample tested there was excessive vibration present, and the motor failed after a short interval at the start of the test. Shock hazard present. (The manufacturer has informed CR that this model is being discontinued, and will be replaced by a new model.) **1**

Thermador Heater Fan, Model HF 161 (Thermador Electrical Mfg. Co., Los Angeles) $14.95. Power input, 1650 (1640). No excessive temperatures noted on exposed metal parts. Air-moving effect of 4-blade 6½-in. fan, poor. Average temperature rise of test room after 3 minutes, 8°; after 15 minutes, 11°. Two control switches used, one marked Fan, On, Off; the other, Heater, On, Off. **2**

Hand Vacuum Cleaners

Top—*Westinghouse*, Model H-5
Bottom—*Singer*, Model H-7

Top—*Apex*, Model 617
Bottom—*Montgomery Ward*, Model 84AC—217A

MANY HOUSEWIVES are using an upright revolving-brush type of cleaner of a make which includes no provision for attachments to clean curtains, upholstery, and similar home furnishings. It is also possible that the attachments for that new cleaner purchased only a year or two ago have found their way to broom closet or attic storage — mainly because they turned out to be difficult to attach or a nuisance and bother to use. For those who need the cleaning facilities provided by the attachments, a small hand vacuum cleaner might afford a convenient solution. In addition, the small vacuum cleaner may prove itself quite useful for other purposes, e.g., cleaning the mats and upholstery in the family car, and also the shelf behind the rear seat, or other small spaces.

Because a hand cleaner is expected to be capable of cleaning many places which are inaccessible to the larger cleaners, the shape and design of the nozzle are quite important. In addition, the cleaner should have sufficient suction to pull dust and dirt from those hard-to-get-at places such as the corners in an upholstered chair and close to window sash. It should be light in weight and well balanced, so that its use would not be needlessly tiring.

These fundamentals of good design can be incorporated quite easily in a hand vacuum cleaner. Several of the units tested, however, were lacking in one or more of these qualities.

CR's tests included, in addition to an engineering examination, measurement of power input, electrical leakage (which is a measure of shock hazard), electrical breakdown, radio interference, and most important, dirt-removing ability. A procedure was adopted for measuring effectiveness in dirt removal which was similar to the method used in testing of normal-sized vacuum cleaners.

It should be noted especially that out-of-doors, if there is any slight indication of a shock, the use of a hand vacuum cleaner, and indeed any electrical appliance, should be discontinued immediately, because the risk in use of an electrically "leaky" appliance out-of-doors is a serious one.

All units tested were for operation on either a.c. or d.c. in the 110-120 volt range. Rated input in watts or amperes is followed in parentheses by measured watts input. All cleaners created strong radio interference with the exception of the *Apex*, which was less objectionable in this respect than others. All cleaners, except as noted, satisfactorily passed the electrical leakage test (indicative of shock hazard).

A. Recommended

Montgomery Ward, Model 84AC—217A (Montgomery Ward & Co., Chicago 7) $19.95, plus postage. 1.7 amperes (272 watts). Stationary brush attached to nozzle. Weight, 6.2 lb. (heaviest of group). Storage space, 72 sq. in. 21-ft. cord. Quality of materials and workmanship, good. Well balanced. Nozzle shape, good. Dirt-removing ability, good. Method of detaching and emptying bag considered good feature. Noise attendant upon operation, about average. **1**

Kenmore, Model 116.745-1 (Sears, Roebuck & Co., Chicago) $21.50, plus postage; $23.95 at retail stores. 2.2 amperes (276 watts). Rotating-brush type. Weight, 5.9 lb. (heavy). Shelf storage space required, 150 sq. in. Length of attachment cord, 20½ ft. Quality of materials and workmanship, good. Had good balance. Nozzle shape, fair. Dirt-removing ability, good. While the cleaner was being used, the revolving brush in the nozzle came into contact with the wire nozzle guard which resulted in intermittent or uncertain operation of the brush. This defect was not noticed in the second sample, which had a tighter belt. First sample tested failed in voltage breakdown test, but second sample was not found deficient in that respect. Noise in operation, about average. **2**

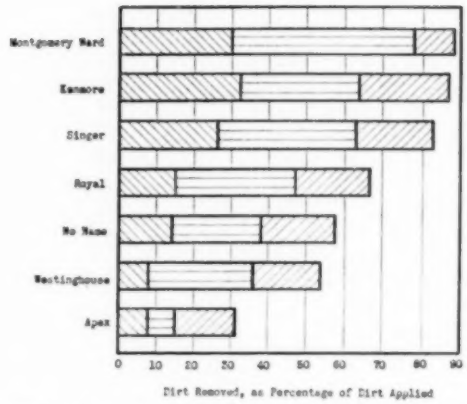


Chart showing the relative dirt-removing ability of the seven hand-type vacuum cleaners tested. The average for three tests on a medium-pile test rug is shown on the chart as follows:

Percentage of test-dirt removed from start to end of first minute.

Additional percentage of dirt removed from end of first minute to end of third minute.

Additional percentage of dirt removed from end of third minute to end of sixth minute.

Singer, Model H-7 (Singer Mfg. Co., Elizabethport, N.J.) $27.25. Watts input, 170 (208). Fixed brush on nozzle. Weight, 5.6 lb. (average). Storage space, 120 sq. in. 21-ft. cord. Quality of materials and workmanship, good. Well balanced. Nozzle shape, good; front and sides were of minimum thickness, which favors cleaning

Top—*Royal*, Model 157
Bottom—*Kenmore*, Model 116.745-1

Hand Vacuum Cleaner, manufacturer unknown. This poorly-designed cleaner (see listing) exemplified the risk in purchasing unknown or private brands, particularly where a hazard to the user may be involved.

of hard-to-get-at areas. Dirt-removing ability, good. Had good balance. Noise in operation, about average. **3**

B. Intermediate

Royal, Model 157 (P. A. Geier Co., Cleveland) **$24.95.** Watts input, 175 (153). Rotating-brush type. Weight, 5.2 lb. (average). Shelf storage space required, 70 sq. in. 14½-ft. cord. Quality of materials and workmanship, good. Balance considered slightly inferior to that of other cleaners tested. Nozzle shape, good (though stubby); edges were comparatively thin. Dirt-removing ability, fair. Comparatively quiet in operation. Some shock hazard at operating temperature. **2**

Westinghouse, Model H-5 (Westinghouse Electric & Mfg. Co., Mansfield, Ohio) $24.95. Watts input, 150 (166). Rotating-brush type. Weight, 5.1 lb. (average). Shelf storage space required, 170 sq. in. 19⅔-ft. cord. Quality of materials and workmanship, good. Well balanced. Nozzle shape, fair. Dirt-removing ability, fair. Made somewhat more noise than other cleaners in test. **2**

C. Not Recommended

No Brand Name (see picture on p. 14, please). This, purchased at a leading Newark, N.J. department store, was not identifiable as to make. $19.95. Measured watts input, 215. Straight-suction type, no brush. Weight, 4.5 lb. (light). Shelf storage space required, 125 sq. in. 14¾-ft. cord. Quality of material and workmanship, only fair. Dirt-removing ability, fair. Had a 6-ft. section of flexible hose, with removable nozzle attached, which some might consider awkward to use but which was considered distinctly advantageous in cleaning hard-to-get-at places. Impeller blades of fan were spot-welded to a disk. On first sample tested, one of the blades came loose, due to centrifugal force at the high motor speed, and was thrown against fan housing with sufficient force to break it. Failed proof-voltage test at operating temperature. Noise in operation, about average. **1**

Apex, Model 617 (Apex Electrical Co., Cleveland) $24.95. Watts input, 110 (82). Weight, 4 lb. (lightest of group). Shelf storage space, 100 sq. in. 17½-ft. cord. Quality of materials and workmanship, good. Balance, good. Dirt-removing ability, poor. Nozzle shape, fair. Comparatively quiet in operation. **2**

Subscribers' Reports on Experiences with the New Automobiles

THE RESPONSE to CR's request in the October 1948 BULLETIN for subscribers' reports on their 1948-49 automobiles has been very gratifying, and so much information has reached us that it has been impossible to make adequate acknowledgement of all the letters received. We take this opportunity to express our sincere thanks to those subscribers who wrote CR, for their contributions, which were of great interest and distinctly useful. We hope that other subscribers who may have bought new cars will write us giving their experiences with them in general, with discussion of the characteristics, desirable and otherwise, of the new bodies, various defects experienced, servicing troubles and costs, gasoline and oil mileage, details of any abnormal rate of wear experienced with the new extra-low-pressure tires, when the car was ordered with such tires, and any other useful significant data on their cars.

One important point that came out clearly in the reports we have received from subscribers was that the present body designs are not working out too well for those who have to drive and ride in them. The following is typical of comments in the letters. (The name of the car has been omitted, as the criticisms are of a type that could well apply to a great many of the cars on the market today.)

> I have purchased a . . . and its defects are *numerous*. The rear doors do not open even *half* way which makes it difficult indeed to get in the car and the piece of metal on the bottom of the door is a menace. One of my friends tore her stocking and received a mean wound. I have to get in on the left side and get out on the right side. The top is so low no one over 5 ft. 4 in. can get in and wear a hat. No tall man could, I am sure, and keep his hat on. The leg room is too small for one over 5 ft. 4.

> I consider it a defect not to have a running board. People with *any* arthritis find it difficult to step up so high. My car does not go more than 13 or 14 miles on a gallon of gas. The steering wheel had to be raised because of its being too low. The cars these days, nearly all cars, are not built for older people who need to use cars more than small, slim young people, who seem to be able to manage all right.

> Shopping around for a car does not seem to do much good, for most of the bodies have the defects I have mentioned above. When I go out, I want comfort but it is *not* in the new cars, and I think I shall turn this car in as soon as I can find one that is more comfortable. I do hope body builders will *reform*.

Men's Undershirts and Shorts

Now that there are plenty of undershirts and shorts in the stores, and the male needing new underwear no longer has to make his selection from khaki-colored army surplus, it seemed fitting to sample and test the available stocks. Today the consumer can once more make up his mind what he wants and then have a good chance of finding it in the shops when he is ready to buy.

Samples of 13 brands of athletic-type undershirts, eight brands of woven shorts, and six brands of knit shorts were purchased in retail stores. The tests performed fell into two classes, (1) thread counts or counts of wales and courses, identification, and shrinkage of the fabrics, and (2) checking the garments for compliance with size requirements, construction, workmanship, and weight.

On woven fabrics, thread counts in three locations were averaged; wales and courses were counted in knit fabrics. Identification of woven fabrics was determined through Hoye's "Staple Cotton Fabrics" and comparison with sample swatches. Shrinkage was measured after one washing at 150°F for 15 minutes with soap flakes, and two rinses in tepid water. For the most part, the garments were found fairly satisfactory as to shrinkage; only where it was considered excessive is it noted in the listings.

Standards of the Underwear Institute, wherever applicable, were used for determining correctness of size (measurements). In examining construction of the undershirts, type of yarn used and finish of the bottom edge were noted; of the woven shorts, fastenings, seams, fly construction, type of waistband, width of seat panels, and fineness of stitching were all considered; knit shorts were inspected to determine the number of layers of cloth in the panels, the size of the multiple layer area, style of leg hem, seam reinforcement, etc. Failure to comply with the requirements of Federal Specifications JJ-U-513 with regard to number of wales and courses per inch is noted in the listings of men's undershirts. Judgment of quality of workmanship was based on careful examination of the finished garment to determine the care used in making it. Garments were weighed to the nearest 0.1 gram. All the above properties were considered in making final rankings.

Fullness of cut is essential both to comfort and long wear in woven shorts, for skimpiness causes poor fit, with resulting strains leading to early wear.

Prices were much higher than those paid for shorts reported on in April 1944; today's higher prices make information as to probable wearing qualities of even more value than formerly.

Ratings are cr49.

Men's Undershirts

Material used was Swiss-rib knit unless otherwise noted. Five of the shirts were knit from *Durene*, a high-luster mercerized cotton yarn of very good wearing properties and appearance. Note is made in the listings where this yarn was used; where type of yarn is not mentioned, plain cotton yarn was used. Three types of bottom finishes were found in the samples tested: (a) flat-hemmed, judged the most desirable; (b) hemmed with a slight ridge (pinched); and (c) stitch-bound, judged the least desirable.

A. Recommended

Diener (Montgomery Ward's Cat. No. 29—406) 79c, plus postage; sizes 48 to 50, 86c, plus postage. High-count *Durene* yarn fabric somewhat low in number of courses per inch. Construction and workmanship, very good; compliance with standard size requirements, good. Bottom hemmed flat. **2**

Hanes (P. H. Hanes Knitting Co., Winston-Salem, N.C.) 75c. Medium-count fabric somewhat low in number of courses. Construction, workmanship, and compliance with size requirements, very good. Bottom hemmed flat. Shrinkage, somewhat high. **2**

Healthknit MacDee Kut-Ups (Standard Knitting Mills, 93 Worth St., N.Y.C.) 70c. Medium-count fabric somewhat low in number of courses. Construction and workmanship, good; bottom hemmed flat. Compliance with size requirements, fair. **2**

Jockey (Coopers, Inc., Kenosha, Wis.) 85c. Panel-knit (alternating sections of Swiss and 1 x 1 rib), low-count fabric. Construction and workmanship, fairly good. Bottom, stitch bound. Compliance with size requirements, fair. **2**

Arrow (Cluett, Peabody & Co., Inc., Troy, N.Y.) $1.50. High-count *Durene* yarn fabric. Construction and workmanship, good. Bottom, stitch bound. Compliance with size requirements, very good. **3**

Pirie (Distributed by Carson, Pirie, Scott & Co., Chicago) $1. Medium-count *Durene* yarn fabric somewhat low in number of courses. Best construction and workmanship of any sample tested, but bottom was stitch bound. Compliance with size requirements, very good, except as to length, which was scant. Shrinkage, somewhat high. **3**

Wilson (Wilson Bros., Chicago) $1.50. Low-count *Durene* yarn wide-rib fabric low in number of courses. Workmanship and construction, good; bottom hemmed flat. Compliance with size requirements, very good. **3**

B. Intermediate

Wards (Montgomery Ward's Cat. No. 29—462) 39c, plus postage. Low-count fabric low in number of courses. Workmanship and construction, poor, but bottom hemmed flat (desirable). Compliance with size requirements, fair. Shrinkage, somewhat high. **1**

Sears (Sears-Roebuck's Cat. No. 16—5122) 79c, plus postage. Medium-count *Durene* yarn fabric low in number of courses. Construction and workmanship, good; bottom hemmed flat. Compliance with size requirements, poor; otherwise would have warranted an *A* rating. Shrinkage, somewhat high. **2**

Globe (Globe Knitting Works, Grand Rapids, Mich.) $1. Medium-count fabric somewhat low in number of courses. Construction and workmanship, fairly good; bottom, stitch bound. Compliance with size requirements, very good. Shrinkage, somewhat high. **3**

C. Not Recommended

Fruit of the Loom (Fruit of the Loom, Inc., Providence, R.I.) 59c. Medium count fabric low in number of courses. Construction and workmanship, poor. Pinched hem. Compliance with size requirements, very good. Shrinkage, excessive. **1**

Pilgrim (Sears-Roebuck's Cat. No. 16—5134) 59c, plus postage. Low-count, 1 x 1 rib, drop-stitch panel fabric, the only knit fabric tested which failed to meet Federal Specifications both as to number of wales and courses. Construction and workmanship, poor. Bottom hemmed flat. Compliance with size requirements, very good. Shrinkage, excessive. **1**

Reliance Town Shirt (Reliance Mfg. Co., Chicago) 59c. Medium-count fabric low in number of courses. Workmanship and construction, poor. Bottom finished with pinched hem. Compliance with size requirements, good. Shrinkage, excessive. **1**

Woven Shorts

Workmanship, cut, size compliance, shrinkage, and quality of material were considered in rating men's woven shorts. Shrinkage was found negligible except as noted. Front fastenings of all the samples tested were of the desirable gripper type. Adequate overlap of the fly opening and width of seat panels were given weight in judging construction and cut of the garments. All waistbands were provided with some type of elastic adjustment feature.

A. Recommended

Ward's (Montgomery Ward's Cat. No. 29—530) $1.19, plus postage. Woven stripe poplin. Thread count: warp, 84; filling, 46. Workmanship, excellent. Construction, very good; wide seat panel. Size, very good. **2**

Arrow (Cluett, Peabody & Co., Inc., Troy, N.Y.) $1.50. Woven stripe broadcloth. Thread count, 100 x 60. Workmanship, excellent. Construction, very good, except design of fly opening; widest seat panel of shorts tested. Size, very good. **3**

B. Intermediate

Healthgard (Montgomery Ward's Cat. No. 29—453) 79c. Printed broadcloth. Thread count, 106 x 62. Workmanship, very good. Construction, good; *Notare* fly of excellent design; narrow seat panel. Size, very good. **1**

Reliance (Reliance Mfg. Co., Chicago) $1. This seems to be identical with *Healthgard* but had slightly higher shrinkage. **2**

Super Shorts (Wilson Bros., Chicago) $1.50. Printed broadcloth. Thread count, 103 x 55. Workmanship, good. Construction, fairly good; seat panel, medium width. Size, fairly good. Shrinkage, 5%, highest of woven shorts tested. **3**

C. Not Recommended

Fruit of the Loom (Fruit of the Loom, Inc., Providence, R.I.) 79c. Printed muslin. Thread count, 76 x 71. Workmanship, good. Construction, fair; seat panel, medium width. Size, good. **1**

Sears (Sears-Roebuck's Cat. No. 16—5161) 89c, plus postage. Printed broadcloth. Thread count, 88 x 62. Workmanship, good. Construction, fair; wide seat panel. Size, fair. **1**

Textron (Textron, Inc., Providence, R.I.) $1. Printed muslin. Thread count, 76 x 76. Workmanship, good. Construction, fairly good; seat panel of medium width. Size, very good. **2**

Knit Shorts

All the samples tested had all-elastic waistbands. Although no standards for knit shorts of the type tested have been developed by the Underwear Institute, it was possible to check measurements in some cases to the standards for woven shorts and knee-length drawers; size comments in the listings are based on these requirements.

A. Recommended

Pilgrim Vee Line (Sears-Roebuck's Cat. No. 16—5123) 79c, plus postage. Briefs, 1 x 1 rib, knit of *Durene* yarn. Construction and workmanship, very good. Size, judged somewhat unsatisfactory. **1**

Jockey Midway (Coopers, Inc., Kenosha, Wis.) $1.25. Mid-length short. Panel knit. Construction and workmanship, good. Size, considered good. **3**

B. Intermediate

Hanes Fig Leaf (P. H. Hanes Knitting Co., Winston-Salem, N.C.) 85c. Briefs. 1 x 1 rib knit. Construction and workmanship, excellent. Shrinkage, excessive. Size, considered very good. **1**

Healthknit MacDee (Standard Knitting Mills, 93 Worth St., N.Y.C.) $1.15. Mid-length shorts. Construction, very good except for pinched hem on legs. Workmanship, very good. Size, considered good. **3**

C. Not Recommended

Geeps (Lewis Knitting Co., Janesville, Wis.) $1. Ultra-briefs. Swiss-rib fabric judged to be cool but too light in weight to have satisfactory wearing qualities. Construction, poor. Workmanship, excellent. Shrinkage, excessive. Size, considered very good. **2**

Slix Body-Line (Globe Knitting Works, Grand Rapids, Mich.) $1.25. Mid-length. 1 x 1 rib knit. Construction, fairly good. Workmanship, excellent. Shrinkage, excessive. Size, considered poor. **3**

An Inexpensive Record-Player-Amplifier-Speaker System

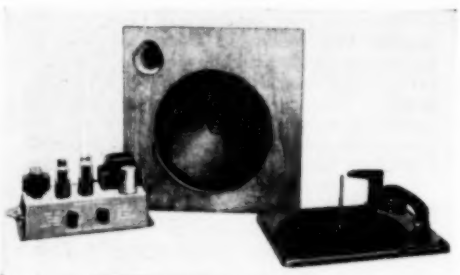
THE record-player system illustrated and described in this brief article will be of special interest to those of our subscribers who are desirous of installing a good phonograph reproducing system in a bookcase, wall, or other desirable location, but are doubtful as to their ability to construct at home a high-quality basic amplifier (see CR's BULLETIN of August 1948, page 31) and connect the various components correctly to a record player or a changer.

The *Bogen PK* system is comprised of an amplifier, a dual speaker, and a record changer with which are included matched plugs and jacks for interconnection, making the system very easy to hook up for operation. Its performance, while not equal to that provided by the use of one of the magnetic-type pickups used in conjunction with one of the better amplifier-speaker combinations, was, nevertheless, surprisingly good. It would be fair to say that its reproduction from records was about equal to that provided by console combinations in all but the top or $1000-up price level. In other words, its performance would be rated about as good as that afforded by the average $500 radio-phonograph.

A. Recommended

Bogen PK High Fidelity System (David Bogen Co., Inc., 663 Broadway, New York 12) $84.96, available on mail-order from Sun Radio Co., 124 Duane St., N.Y.C., and other mail-order radio parts dealers. Consisted of

Curves showing power output of the *Bogen PK System* over a wide range of frequencies at 2½ and 5 percent harmonic distortion.



Bogen PK High-Fidelity Phono System

Bogen, Model PH-10, ten-watt amplifier, 6V6 output tubes (beam power, in push-pull); a *Webster-Chicago 148* changer; *Astatic Nylon 1-J* cartridge and sapphire-tipped needle; and a speaker combination composed of a 12-in. unit (maker's name not stated) for the low frequencies, and a *University*, Model 4401, high-frequency unit, the two mounted on a plywood baffleboard. Effective electrical response of cartridge, 50 to 8500 cycles (down 10 db.). Power output of amplifier: 3.8 watts at 50 cycles, 11.6 watts at 1000 cycles, 9.2 watts at 10,000 cycles, all at 2.5% distortion (fairly good). Four-position tone control varied electrical response from a bass boost of 7 db. at 50 cycles and treble cut of 11.5 db. at 10,000 cycles at position 1 to a flat response (within 3 db. from 20 to 20,000 cycles) at position 4. Hum level sufficiently low to be unobjectionable. Leakage current (shock hazard), excessive, 4.5 ma. A listening test was made; in this the over-all tonal quality was judged very good with a high volume level possible without excessive distortion or blasting. For best performance, the small baffleboard on which the speaker is mounted should be properly installed in a large cabinet. If available, a larger flat baffle (preferably in a wall or the door of a closet, where conditions permit), should be used, say 4 or 5 ft. square (the larger the better, up to about 8 ft.) with the speaker 6 to 8 in. off-center. The components appear to have been well chosen and related to each other so as to give very satisfactory musical reproduction at moderate cost. An FM tuner, such as the *Pilotuner* ($30), could be added, but a change-over switch would need to be installed by a serviceman in that case. **1**

Fluid Drives and Automatic Transmissions

THE only new development in this field is *Buick's Dynaflow* automatic transmission, rival to the *Hydramatic* used on *Pontiac, Oldsmobile,* and *Cadillac.* Both *Hydramatic* and *Dynaflow* utilize a fluid clutch. The main difference between the two is that in the *Dynaflow* the gear transmission as used in the normal driving range has been replaced by a hydraulic torque converter which provides the equivalent of innumerable gear ratios. Gears, however, are still required for "emergency low" and "reverse." Compared with the *Hydramatic,* the *Buick Dynaflow* does have a slightly smoother acceleration from standing start to top speed, but it is questionable whether the difference is significant or would be appreciated by any except the most critical drivers. *Dynaflow* has provisions for freewheeling, has band and plate clutches, oil pumps, pistons and valves, and even an oil cooler.

Furthermore, while gears need seldom be shifted in ordinary driving, as with conventional transmissions, there are just as many shift positions for the control lever as there are in the conventional car—the correct use for all of which must be learned.

Another factor involved in car operation is that the torque converter type of transmission (*Buick*) is designed for a given engine performance. This requires that, for best performance of the transmission, the engine must be maintained in good condition.

Following are some other factors that need to be considered in connection with the *Buick Dynaflow*:

1. While there is nothing more to be "adjusted" in service than on the conventional transmission, there are more parts, with increased chance of something going wrong, and there is the vital factor that only well-qualified dealer's shop having men who have had the proper training under *Buick* representatives, will be likely to service the unit correctly. *Anyone other than a specially-trained Buick mechanic may do harm rather than good in case his services are used to help in an emergency.*

2. There is a loss of power in all transmissions, but there is much more loss in the automatic transmissions than in the gear units. So great is this power loss that the oil in the *Dynaflow* is continuously passed through a water cooler which is piped to the radiator of the car. The piping from the radiator, of course, introduces another minor complication, and extra care must be taken to see that the cooling system contains sufficient anti-freeze at all times in the winter. (Cooling the transmission oil by air flow with fins was found inadequate to carry away the large amount of heat developed with the car operated "stop and go" at relatively slow air speeds.)

3. Acceleration when driving a *Dynaflow* is slightly better than that obtained when the same car with a conventional transmission is driven in "second" from a standing start, but is not as good as can be obtained with the conventional transmission when "low," then "second" is used. This is one reason for the incorporation of a gearshift for "low gear" in the *Dynaflow.*

4. When starting the engine, the shift lever should be in "neutral" or "parking" position. In the latter position, the transmission is locked in such a manner that the rear wheels cannot turn. This locking against motion, of course, gives an effective parking-brake action, but cars with gear transmissions parked in gear have often had the transmission gearing seriously damaged if banged into from behind or from the front. The hazard of this may be even greater, and the cost of damage considerably more serious with the *Dynaflow* transmission.

A "neutral safety switch" is provided to prevent the starter's engaging and starting the engine with the transmission in one of the driving positions.

5. As with the *Hydramatic,* the engine idle adjustment must be set so that the engine does not idle too fast, to prevent the car from creeping ahead when, at a stoplight, for example, it should remain stationary.

6. A driving convenience with the *Dynaflow* and the *Hydramatic* is that the car can be held at a stoplight on an upgrade with just the accelerator, holding the engine to a speed which keeps the car from moving either backwards or forwards.

Because of the precision with which the parts must be made and assembled at the factory, failure in the torque converter part of the transmission would probably involve replacement of the complete converter unit. The prospective purchaser who must consider costs had better carefully investigate the amount that would be charged to him for extensive service on the *Dynaflow* or *Hydramatic* unit, including the maximum adjustment and overhauling charge and the charge for complete replacement if it should be needed.

To facilitate service, the *Dynaflow* transmission is assembled in three separate housings, bolted together. The forward housing contains the torque converter and one of the gear-type oil pumps. The middle housing contains the planetary gears and clutches. The rear housing contains the rear pump, speedometer drive, and transmission lock (parking). The oil cooler is a separate external unit. An

oil pan under the center housing contains the mechanism to operate the "reverse" engagement, valves, and oil filter. Thus each part of the transmission has been made accessible for needed service—but there are plenty of parts.

The main question which the consumer must decide is whether the added cost and complicated equipment is really worth while, considering that its only advantage is to eliminate the clutch pedal and manual gearshifting, and it has the disadvantage that it will use somewhat more gasoline than the conventional transmission.

CR has been unable as yet to obtain figures on fuel economy of cars equipped with *Dynaflow under normal driving conditions*, but the following data kindly supplied as a result of a written request to the Buick Division of General Motors will be of interest. It is important to note that these figures are higher than would normally be obtained, as they are based on tests made under the most favorable conditions, i.e., at fixed speeds, on level roads, with no tail or head wind, and without increases or decreases of speed during a run.

These figures indicate that the *Dynaflow* gave from 2.7 to 6.7 percent less miles per gallon at various speeds than the same model car with a standard transmission; the *Dynaflow* gave the best results as to gasoline mileage, in comparison to the standard transmission, at speeds between 50 and 60 miles per hour. The values, as have already been pointed out, are at constant driving speeds; thus under normal driving conditions with intervening periods of acceleration, the miles per gallon figures given in the table would be reduced considerably, it is believed.

Gasoline Mileage

Speed m.p.g.	*Standard Transmission m.p.g.*	*Dynaflow Drive m.p.g.*
20	17.8	16.6
30	17.8	16.6
40	16.5	15.7
50	15.1	14.7
60	13.8	13.3
70	12.2	11.5
80	10.6	10.0

Regardless of the relative merits of the two types (*Dynaflow* and *Hydramatic*), the fact does remain that the cost of either one is pretty high and this extra investment involves some risk. Indeed, a further factor must be considered, for if service experience does not turn out favorably, there will be a tendency to reduce greatly the resale and turn-in value of the car.

Chrysler cars use a conventional transmission with fluid drive (hydraulic clutch) and the latter is open to the same type of criticism and questions as *Dynaflow* or *Hydramatic*.

War Surplus Motion Picture Camera

WAR SURPLUS 16 mm. motion picture cameras are being offered at various prices ranging from $55 to $139.50 by Associated Photo Products Co., 152 W. 42 St., N.Y.C. A $25 model is sold by Associated Surplus, North Hollywood, Calif. These are GSAP (Gun Sight Aiming Point) cameras, which with the exception of the $25 model have been converted for civilian use. Two of the higher-priced models are sold under the trade name *Lektro*. Tests were made on the $25 model, which required about six hours to convert (instructions accompanying camera greatly misrepresented the actual problem, as the advertiser claimed one hour), but the time would have been less had it not been for the difficulty of freeing screws that were corroded in place. Conversion required the removal of a heating unit, a magnetic device, and four "fiducial pointers," and the addition of a view-finder (cost about $12) and battery ($5).

The camera was equipped with *Bell & Howell Ansix Type-V* f:3.5 lens of 35 mm. focal length in fixed mount, and hence was suitable only for use at distances between 15 feet and infinity. Speeds were 16, 32, or 64 frames per second. Pictures obtained at infinity were fairly sharp but judged not sharp enough to satisfy critical users. Shutter could stop in either open or closed position depending upon instant at which current was turned off. (When it remained open, one complete frame and edges of adjacent frames were fogged.)

In CR's opinion, anyone requiring a low-priced 16 mm. camera would be wise to purchase a used Model K *Kodak* (a non-magazine type motion picture camera) with f:3.5 or f:1.9 lens at perhaps $35 to $50, rather than to purchase the GSAP at $25 and extras ($17) plus his time for conversion.

CORRECTIONS TO CONSUMERS' RESEARCH BULLETIN OF

JANUARY 1949

Electric Automatic Storage Water Heaters p. 30, col. 1	L & H (A.J. Lindemann & Hoverson Co.). These heaters have built-in magnesium anodes as regular equipment.
Men's Undershirts p. 17, col. 1	Delete the first line of the listing of the Reliance Town Shirt and substitute the following: Town Shirt (Distributed by Wieboldt Stores, Inc., Chicago) 59c. This shirt was represented as being made by Reliance, at the time of its purchase in a Wieboldt store. However, the Reliance Manufacturing Co., of Chicago, has advised CR that it did not manufacture the Town Shirt listed. In the listing of the Pilgrim undershirt, Sears-Roebuck's Cat. No. 16 - 5134, line 2, change "Low-count" to "Medium-count." Delete the third and fourth lines of the listing, referring to number of wales and courses in relation to Federal Specifications.
p. 16, col. 1	In the fourth paragraph, the Federal Specification JJ-U-513 applies to flat-knit undershirts and not to rib-knit undershirts, the type included in the test.

Double-Glazed Windows

DESIGNERS of all types of buildings have long realized that the greatest heat loss per square foot of wall area is that occurring through single-glazed windows. In a typical home, approximately *four and a half times* as much heat is lost through each square foot of window as through a similar area of uninsulated wood siding and plaster wall, to say nothing of the direct leakage of heat-laden air, through air flow, around the window sash.

With the temperature outside at 18°F, the inside surface of single-glazed windows will be at about 32°F; this is roughly comparable to having a cake of ice of the same surface area at each window position. As about 10 percent of the vertical outside surface of an average house is window area, the heat loss is obviously considerable. In a climate such as that of New York, *each 10 square feet of window area not protected by storm sash will be responsible for the consumption of about 150 pounds of coal or 14 gallons of oil during the winter.* There is also an additional factor of discomfort in that the body heat of anyone near an unprotected window will be radiated to the cold surface; this creates a feeling of chill and draft.

Glass is such a poor insulator that merely increasing its thickness has very little value in reducing heat loss through windows. On the other hand, motionless air is a good insulator, whence all solutions to the window heat loss problem have been based upon enclosing a dead air space between two or more thicknesses of glass. This was first accomplished in the familiar storm sash, which, properly installed, reduce the heat loss through the window by slightly more than half, and have thus served well as one of the major means for reducing fuel consumption.

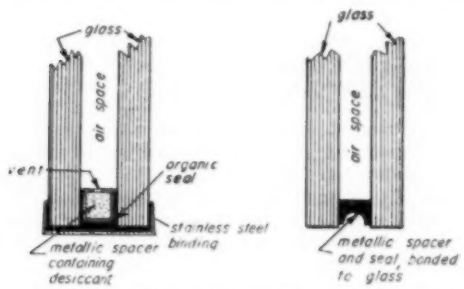


Figure 1 — Diagram showing difference in basic construction of *Twindow* and *Thermopane*.

Note: Figure 1 shows only the panes of glass and methods of binding. Both Pittsburgh Plate Glass (*Twindow*) and Libby-Owens-Ford (*Thermopane*) furnish complete instructions for installation in the necessary special wide-groove wooden sash, but strongly recommend that all installations be made by a glazing expert. The reason is that installation of this type of window is far more complicated than that of the usual single-pane type. It is necessary, among other things, that the constructional details make allowances for expansion, swaying or movements of the building. It is also important to note that the size of the glass must be just right, as it cannot be altered after purchase.

In certain types of construction, as for example large "picture windows," storm sash has disadvantages such as bulkiness in handling and storing, difficulty of cleaning, and frosting up in cold weather, that point to the desirability of a more permanent and convenient type of double glazing as an alternate.

Glass manufacturers have been conscious of this need for years, but have been faced with serious technical difficulties. If a sandwich of glass and air was to be permanently sealed, the entrained air would have to be thoroughly dry, since even a small amount of moisture would condense and turn to frost in cold weather. As dry air can soak up considerable moisture, the seal must be made very tight for the intended life of the window, or moisture and some dust and dirt would infiltrate the air space. After many years of experimenting, two manufacturers, Libbey-Owens-Ford Glass Co. and Pittsburgh Plate Glass Co., are sufficiently satisfied that they have solved the problem and are offering wide varieties of double glazing of different kinds and colors of glass. These are sold under the respective trade names of *Thermopane* and *Twindow* and carry five-year guarantees against leakage and discoloration of the inside surface.

The construction of the two competitive windows is radically different (see Figure 1). *Thermopane* uses a direct bond of solder to glass, achieved by first electroplating the glass, and the manufacturing process is such that two glasses enclose clean, predried air; *Twindow* uses an organic bond held in place by stainless steel edging, with a hollow metal spacer containing a desiccating chemical (one having a high affinity for water), to remove the last traces of moisture. Both have advantages and disadvantages; CR consultants at this time can offer no definite preference for one method over the other. Similarly, the performance of the two types of glass in blocking heat flow from the house is sufficiently close that approximately the same factors may be said to apply; these are best described from Figures 2 to 4 as follows.

Effect of Air Space on Heat Conductivity

Figure 2 shows that whereas the factor of heat loss for single glazing will be about 1.12, the loss

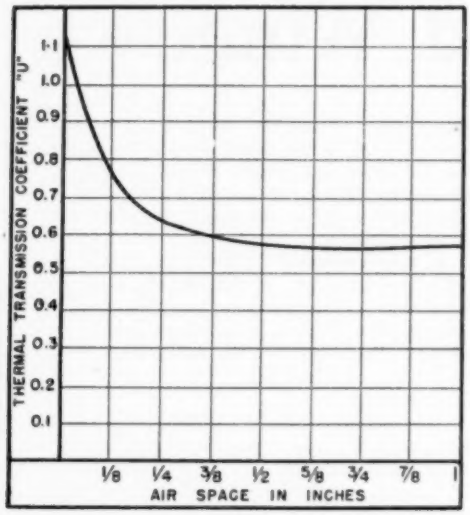


Figure 2 — Graph showing the effect of depth of air space on the heat conduction through double-glazed windows, assuming inside temperature of 70°, outside temperature of 0°, with wind at 15 miles per hour.

Thermal Transmission figures refer to heat loss through glass in Btu's per hour per degree difference in temperature. Glass used is ⅛ in. thick, in double-glazed windows.

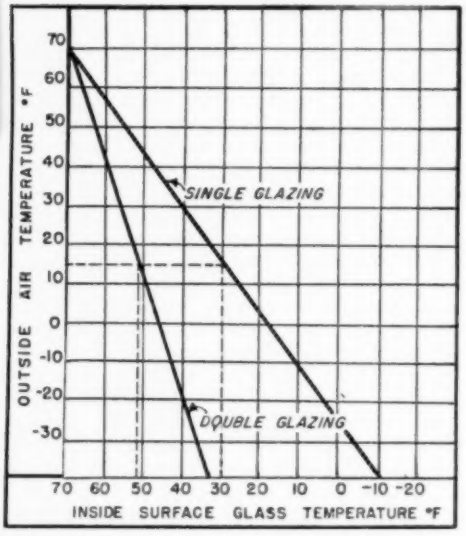


Figure 3 — Graph showing temperature of the surface of the glass on the room side, with both single- and double-glazed windows.

Air space in double-glazed window, ½ in. Room temperature of 70°, wind outside 15 miles per hour.

will be reduced with double glazing to 0.63 for a ¼-inch air space and to 0.58 for a ½-inch air space, with proportionate savings in heat lost through the glass. As these two spacings are standard with both manufacturers, the 14 gallons of oil described as lost per year per 10 square feet of single glass area will be reduced to about 8 gallons or by 43 percent with a quarter-inch air space and to about 7 gallons or by 50 percent with a half-inch air space. As the price of the glass is the same in both cases, it seems wise when practicable to install sash for the thicker units. Figure 2 shows that increasing the air space beyond ½ inch does not improve the heat-retaining efficiency appreciably.

Both manufacturers make triple- and quadruple-glazed units. As compared with a loss factor of 0.58 for double glass with a ½-inch air space, the factor for triple glass with two ½-inch air spaces is 0.37, and the factor for quadruple glass with three ¼-inch air spaces is 0.32. These multiple units are so thick and expensive that they would normally be used only for special applications where a very exceptional degree of insulation is required.

Double-Glazing Results in Much Warmer Inside Glass Temperatures

As is shown in Figure 3, there is a wide difference in the temperature of the inside of the glass when single and double glass is used. Following the dotted line at the outside temperature of 15°F over to single glazing, the inside of the glass will be seen to be 30°; under the same conditions with double glazing, 52°. This is a sufficient difference to mean that anyone near the double-glazed window would be much more comfortable than if near a single-glazed window.

Frost and Condensation on Single and Double Glass

A further advantage of double glazing is the much lower outdoor temperatures required to cause condensation on the inside surface of the inner glass. As shown in Figure 4, at an assumed humidity of 40 percent in the house (a common winter value), condensation will appear whenever it is 35° or less outdoors with single glazing, whereas with double glazing it will not start to form until about 0°.

Installation Conditions

For varied reasons, double glazing is recommended only for relatively large panes of glass such as either picture windows or at the smallest, "one-over-one" sash (one large pane below and one above). With small panes, the cost is disproportionately high because of the higher labor factor; and the cross pieces or muntins would have to be thick and cumbersome to hide the metal edge of the glass. When old sash can be adapted to double

glass, as it can in rare cases when the rabbets are at least ½ inch high and 1¾ inches deep, it is still best to remove the cross muntins so as to convert the windows into the one-over-one type.

In *old houses*, the installation of so-called picture windows can be accomplished in two ways, by building the glass into the wall without removable sash, and by replacing the sash or adapting it to the thicker glass. At present there are only a relatively few manufacturers of such special sash. Some are:

Group I[1]

Anson & Gilkey, Merrill, Wis.
Farley & Loetscher Mfg. Co., Dubuque, Iowa
Huttig Mfg. Co., Muscatine, Iowa
Morgan Co., Oshkosh, Wis.
Rock Island Millwork Co., Rock Island, Ill.
Semling-Menke Co., Inc., Merrill, Wis.
Curtis Companies Inc., Clinton, Iowa

Group II[2]

Anderson Corp., Bayport, Minn.

In *new houses*, wood sash to fit any standard glass can be obtained from one of the above manufacturers, or the glass can be built in by the contractor. As yet there is no national distribution of special metal sash, although some few local concerns are willing to fabricate it on order.

Utilizing Solar Heat

Double glazing is ideal for the increasingly popular "solar" type of house in which an overhang is provided on the side facing the sun to admit the sun's heat and light when it is low in the sky in the winter, and yet shade the same windows when the sun is high in the summer. Without double glass, the large amount of heat furnished by the sun in daytime is quickly lost when nightfall comes; with double glazing, a heat trap is provided in that the sun's heat, being largely radiant, can freely penetrate the glass and be absorbed by the air and objects in a room, whereas the heat in the room (whether furnished by the sun or by a heating plant) leaves it mostly by convection, and double glazing, as mentioned previously, tends to reduce this heat loss considerably. In one test at the Illinois Institute of Technology, with the temperature in Chicago at 17°F below zero, the furnace, set to maintain 72°, shut off at 8:30 a.m. and did not come on again until 8:30 p.m. For this entire time, the heat of the sun, entering through a south wall of glass, had done the whole job of keeping the house warm.

[1]For sizes available from manufacturers, see corresponding groups in table of standard sizes on page 24, col. 2.

[2]Anderson Corp. sash is widely used in the East. It is best to consult the manufacturers for information on availability.

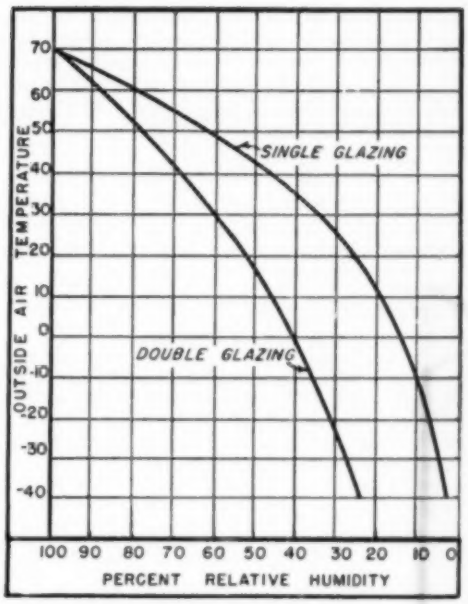


Figure 4 — Graph showing outside temperature required to produce condensation of moisture on the room side of the glass, with single and double glazing.

Room temperature of 70°, wind outside 15 miles per hour. Air space between glasses (in the double glazing), ¼ in.

Advantages and Disadvantages

The *advantages* of double glazing as afforded by *Twindow* and *Thermopane* over regular storm sash may be summed up as follows:

1. Minimizes condensation.
2. Requires cleaning on only two surfaces, as compared with four when separate storm sash are used.
3. A permanent installation with no storage problem.

The *disadvantages* as compared with single glass or storm sash follow:

1. The cost not including any special sash, remodeling, or carpentry, will run *2½ to 3* times that of plate glass which in turn at $1 a square foot is about 6 times as high in price as single-thickness window glass, 4 or 5 times as high as double thickness.
2. It is impractical to use the "colonial" effect of six or more small panes per sash.
3. A special type of heavy wood sash must be employed.
4. Except for the one-over-one type of window, it is difficult to provide adequate ventilation with double-glazed windows. The products listed are rated *B. Intermediate*, solely because there has not yet been a sufficient period of experience with double-glazed windows to make certain that the

windows will last, without impairment of transparency or heat transmission, as long as other basic elements of the house. Present indications are that undue time an *A-Recommended* rating will be justified, if the windows show a useful life of 5 or 10 times the 5-year guarantee period.

B. Intermediate

Thermopane (Libbey-Owens-Ford Glass Co., Toledo 3, Ohio, and principal cities) 3
Twindow (Pittsburgh Plate Glass Co., Grant Bldg., Pittsburgh 19, and principal cities) 3

Standard Sizes of Thermopane and Twindow

Note: Although prepared to make other sizes on order, both Libby-Owens-Ford Glass Co. (*Thermopane*) and Pittsburgh Plate Glass (*Twindow*) list the following sizes as standard. The groupings, however, are those of Pittsburgh Plate Glass Co.

Group I		Group II	
Width	Height	Width	Height
inches		inches	
48½	46	35½	48⅛
56½	46	55¼	48⅛
72½	46	75	48⅛
48½	50	35½	60⅜
56½	50	55¼	60⅜
64½	50	75	60⅜
72½	50		
80½	50	**Group III**	
96½	50	42	66
64½	58	84	66
72½	58	96	66
80½	58	42	72
96½	58	84	72
116½	58	96	72

Note: There are no known manufacturers of "standard" or stock sash for Group III. For manufacturers of sash of Group I and Group II sizes, see page 23, col. 1.

Misleading Advertising of Motor Oils—
More or Less the Standard Practice in Industry

In a number of previous BULLETINS, we have called specific attention to the misleading, irrelevant, or fanciful nature of the advertising of motor oil. Readers, however, do not remember these instances, and are naturally inclined to suppose that there must be substance to every new "line" of advertising which they read about an oil for their car, especially when resort is made in the copy to technical terms and the purported results of technical or scientific tests. If you will just remember that oil advertisers make their living out of making their oil appear to be different somehow from that of their competitors and of superior quality in some way, you will know how to discount such claims. The important thing for each consumer to remember, perhaps, in reading all such advertising, or considering oral arguments of salesmen is this: *supposing that the advertising claims are true, are they of any significance to me* in my use of my car? Suppose the given oil does have a shade more of this or that desirable property, *what difference will it make in actual use*, and what about the other properties that are equally important, perhaps more so?

The Freedom-Valvoline Oil Company was in difficulties some time ago with the Federal Trade Commission, and signed an agreement to cease misrepresentation of the properties and performance of *Valvoline* motor oil. Among the things the company promised not to say any more are that: "Valvoline Motor Oil will outperform all other oils, that it does not thicken at low temperatures or thin out at high temperatures; that its use will prevent oxidizing or formation of sludges or varnishes; or representing that any one has reduced oil consumption one-third by changing to Valvoline, in such a way as to imply that users generally may expect such reduction."

This item is just by way of reminding everyone who buys oil for automobile use to keep in mind that it is not just *Valvoline* that makes such claims (and other claims that are equally untrue and equally misrepresent the simple physical considerations involved). The great majority of advertisers who market motor oils to motorists have indulged at one time or another in exactly this sort of misrepresentation and will doubtless do it in future as marketing situations seem to warrant; the claims will be different, perhaps, but just as untrue in other cases as they were in the case of the *Valvoline* advertising instanced above.

Copper-Clad Stainless Steel Cooking Utensils

COPPER-CLAD stainless steel utensils are considered better for kitchen use than those of plain stainless steel, from the viewpoint of cooking speed, diminished risk of scorching food, and fuel economy.

Because the heat conductivity of stainless steel is low, utensils of that material transfer heat more slowly to the food being cooked than do utensils of several other kinds, and therefore require a longer time and greater expenditure of fuel for an equal amount of food cooked (and in some cases, consequent greater loss of certain food values). The decreased rate of heat flow also makes for uneven temperature over the surface of the utensil, with the result that the temperature of the part of the inner surface that is directly over the source of heat at its hottest part — gas flame or electric unit, for example — may often become so high as to cause scorching of the food.

If the amount of heat transmitted per second through a stated thickness of copper is taken arbitrarily as 100 percent, the amount transmitted through a piece of aluminum of the same thickness and surface area is about 55 percent; for stainless steel of a type commonly used for cooking utensils, the figure is about 4 percent. As a conductor of heat, therefore, copper is nearly twice as effective as aluminum, and about 25 times as effective as this kind of stainless steel. It is reasonable to expect, therefore, that when a stainless steel utensil is coated with an outside copper skin relatively thick in comparison with the thickness of the stainless steel, the heat from the stove will be distributed more uniformly over the surface of the utensil, heating the utensil and its contents more uniformly and with less waste of fuel or electricity. This is the principle of copper-clad stainless steel saucepans, skillets, and the like.

In answer to an inquiry by Consumers' Research, Revere Copper & Brass, Inc., makers of copper-clad utensils, reported a series of tests made to arrive at a measure of the relative thermal efficiencies of copper-clad stainless steel utensils in comparison with utensils of copper or aluminum. The tests consisted of heating strips of the various materials under identical conditions with a heat source at 330°F, and determining the maximum temperature reached at a temperature measuring instrument (thermocouple) situated 3 inches from the heat source. It was found that under these conditions the maximum temperatures reached at the point where the temperature was measured were approximately:

Copper	0.032 in. thick	205°F
Aluminum	0.032 " "	175°F
Stainless steel	0.018 " "	87°F
Stainless steel with a coating of copper 0.025 in. thick (approx. the proportionate thickness used in cooking utensils)	0.018 " "	184°F

(It should be noted that the comparisons are not of *specific* conductivities, but of conductivities of strips of metal of approximately the thicknesses actually used in utensils.)

On the basis of this study, therefore, it appears that copper-clad stainless steel utensils are approximately equivalent in heat transmission characteristics to those of aluminum. Thus the advantages of stainless ware on the interior surface of the vessel can be had without sacrifice of efficiency in transmitting heat. An interesting and useful conclusion which could also be inferred from the test results is that there is a marked advantage in a thick bottom in a utensil, from the standpoint of more even conduction of heat to the contents of the vessel.

Off the Editor's Chest

(*Continued from page 2*)

actual test findings in which the one brand was factually compared with 15 others. It so happens that a second test had been made on the brand of shirt in question at a considerably later date; in that test, too, its quality was found to be poor. We thus had no reason to doubt the validity of the first rating and our judgment, based on tests of the comparative quality of the shirt in relation to the others that were reported in our BULLETIN.

In another case a subscriber protested the *C-Not-Recommended* rating of an electric clock on the ground that he had bought one, and it had "been running perfectly, and keeping excellent time for the past 72 hours." As the listing of the clock plainly stated, the motor and gears of the clock were not protected against dirt, the time-setting mechanism was judged to be of poor design, and the case was too fragile. It was to be expected that nearly any electric clock that was not grossly defective — too defective, indeed, to require testing by CR — would keep time for 72 hours, or the merchants who sold it would have a quite intolerable quantity of returned merchandise on their hands.

One very unhappy experience which has been given us in detail is that of a woman who spent $25 for a cold-wave permanent and subsequently developed such a severe case of dermatitis on her neck that nearly a year later she was still under the care of a physician and a dermatologist. In view of her sufferings and the magnitude of the medical bills involved, her husband quite naturally felt that all women should be warned against the use of cold waves. Yet the Food and Drug Administration, presumably on the basis of extensive research, has, as we pointed out in the October issue, given the process a green light. The official report indicated that the Food and Drug Administration had been unable to find any indication of serious injury caused by the cold-wave process, although it did admit that complaints of allergic reaction had been received.

Where unhappy experiences have occurred with a product, as in the case of the cold-wave permanent, it is CR's opinion that ample warning should be given to users who wish to be informed on the subject, even though the product may be quite acceptable for use by the majority. Such experiences are not, however, considered to form an acceptable basis for proposing to ban a product altogether, however much one victim may think that course of action called for, in the light of her unpleasant and costly difficulties.

It is understandably difficult for a subscriber without scientific or engineering training and without actual testing laboratory experience to realize that his personal satisfaction with a particular product may be due largely to the fact that first of all it has fulfilled its function to some extent, enough to suit his purposes and meet *his* standards of performance; and second that he has had no opportunity to compare its performance with another and better brand or make, at or near the same time, and under approximately the same conditions of use, for the same period. The man who has never ridden for a considerable distance in one of the newer automobiles would probably think that the *Model T Ford* was a first-class car, and it is indeed a great improvement over the horse and buggy (although we hasten to add that we understand the mechanical simplicity and high road clearance of the *Model T* cars are reasons why many are still in use in certain parts of the country).

Plastikool Crib Sheet Retested

SINCE the article on waterproof crib sheets appeared in the June BULLETIN, an improved *Plastikool* sheet has been developed by International Latex Corp. Two samples of the new product were obtained, one furnished by the manufacturer and one by purchase in a department store. Test results were good, so that an *A-Recommended* rating for the sheet is warranted instead of the *B-Intermediate* rating given the previous sample of this brand in the June BULLETIN. (The earlier *Plastikool* sheet, a very thin pinkish film, was found to be the weakest in tensile strength of the sheets tested, but was otherwise satisfactory.) The later samples were somewhat thicker although still in the "thin" group of films and about 70% stronger than the original sample. They were of a white or very slightly bluish color, 36 in. x 54 in. in size and were priced at $1.49, representing a drop in price per sq. ft. of about 18% from the older sample, which measured 36 in. x 47 in. and sold for $1.59.

Electric Automatic Storage Water Heaters

With ratings of models of 18 manufacturers

THE POPULARITY of electric automatic storage hot-water heaters has increased materially during the past few years. Improved efficiency, dependability, practical absence of hazards, such as are involved in heating water by gas or oil, freedom from moving parts, and moderately low operating costs in many localities are all factors stimulating the acceptance of this type of equipment.

In the early days of electric water heating the practice of heating water to 170° and higher and then tempering the outgoing water with a mixing valve reduced the life of galvanized tanks to 4 or 5 years; today the almost universal practice of setting the thermostats at 140° to 150° has so prolonged the life of tanks that 10-year warranties are not uncommon, with even longer actual life expectancies. Improved insulation with the use of heat traps to prevent the circulation of heat through the hot- and cold-water lines has so reduced the standby loss that about 2 watts per hour per gallon of storage capacity is now considered a maximum allowable loss. At this rate, assuming electricity at 1½c, about $1 of the monthly electric bill can be charged against the convenience of having continuous hot water on tap (assuming a heater of 50-gal. capacity). The remainder of the bill is for the *actual heating of the water used*, at almost 100% efficiency. As about 4 gallons can be heated per kilowatt-hour of electricity, costs for current at the assumed 1½c rate would range from 6c for a shower or tub bath to 8c to 15c for washing clothes.

Heaters listed as *A. Recommended* were tested by a well-qualified electrical laboratory and found satisfactory in performance, construction, and design.

Items most likely to cause trouble, which would prevent a heater from receiving an *A-Recommended* rating, include the following:

1. Inadequate baffling of the incoming cold water. Heaters should be so baffled that at least 90% of the hot water in the tank can be drawn off before the temperature of water flowing into the outlet pipe drops 30°F.

2. Inadequate insulation resulting in excessive heat loss with too rapid cooling of tank and extra consumption of electricity.

3. Faulty or poorly constructed thermostats which permit too great a differential of tank temperature, or stick and thus produce erratic control or otherwise prove incapable of the 8° maximum differential between the point of cut in and cut out.

4. Poor recuperation of the tank temperature after heavy withdrawals.

Types of Heaters Available

Most heaters are marketed in several sizes and two fundamental shapes (round and square outer casings). In general, the round types are somewhat more efficient by reason of the more uniform depth of insulation. Several manufacturers make smaller heaters in table-top models designed to match the stove or other kitchen appliances. While the latter are attractive in appearance, their small size is such that they are seldom really serviceable for general household purposes. (See *C-Not-Recommended* listings.)

Nearly all of the heaters, particularly in the larger sizes, can be provided either with a single heating element located near the bottom of the tank or with two elements, with the second element located near the top. The purpose of the latter is to provide a quick recovery of the water temperature after heavy withdrawals have cooled the water in the tank. The upper heating element usually operates at standard electric rates instead of the cheaper "off peak" rates commonly available where the hours of heater operation conform to periods when the load on the power lines is the lightest.

The use of the two elements will be somewhat more expensive, because with two, some of the current is used at a higher rate; some utility companies favor one element combined with an oversized tank of sufficient storage capacity, even when the shut-off periods are moderately long. This matter, and the wattage limit permitted by the power company in the area where the heater is to be used, should be discussed with the local electric company before ordering a heater.

Selecting Heater of Proper Size

Hot water use may vary from 6 to 18 gallons or even more per person per day and is influenced by many factors.

Table I

Approximate Requirements for Hot Water as Delivered to the Appliance, for Various Uses

Purpose	Gallons of Heated Water	Temperature as Used, Degrees
Washing Face and Hands	1 to 3	100 to 105
Shaving	1	100
Shower Bath	15	95 to 105
Tub Bath	15	100 to 105
Baby's Bath	2	100
Laundry, Non-Automatic Washer	15 to 30	135
Laundry, Automatic Washer	12 to 35[1]	150
Baby's Laundry	2 to 4	135
Dishwashing (Hand)	2 to 4 or more	110 to 120
Dishwashing (Automatic)	2 to 6[1]	150
Cleaning	6 per day	120
Cooking	1 to 2 per meal	130

[1]Per load. Some washer manufacturers specify a lower temperature than 150°.

In general, however, an allowance of 15 gallons per person per day is considered safe. (Children and servants should be calculated as equivalent to 1½ to 2 adults.) In addition, allowance should be made for automatic washers at a rate of 20 to 30 gallons *per load of clothes* if such a washer is in use or contemplated for future purchase. With normal operation, about 1½ tankfuls can be obtained from a heater per day. Thus, a family of 2 adults and 2 children would require 6 x 15 (children figured as 2 adults) or 90 gallons, which would be provided by a storage tank 2/3 this size, or 60 gallons. Based on experience, more and more utilities and manufacturers are recommending that 50 gallons be considered the minimum size of tank suitable for general use.

Thirty-five percent to 50% of the total water used in the average home is hot water. Thus, past water bills afford another clue to the size of heater to install.

Location of the electric heater should always be as near as possible to the point of most frequent use of hot water — usually the kitchen. (As much as 40% of the total amount of water heated may be wasted through losses by cooling in the pipes.)

It has been estimated that as much as 20 to 30 kwhr. per month (20c to 45c) can be saved by insulating hot-water pipes.

Where the purchase of an electric water heater displaces an old furnace or range boiler, the latter, if still serviceable, may be used as an effective tempering tank. The incoming cold water is run in series, *first* through the *uninsulated* tempering tank and then through the electric heater. The heat of the cellar, particularly if the tempering tank is near the furnace, will take the chill off the cold water often to an extent of 10° to 20° and thus save some electricity.

Under no circumstances, however, should the old furnace or range coil or other method of heating hot water that may have been used previously be left in series with the electric heater as, in view of the very good insulation of the latter, a serious explosion hazard may be involved.

Circulating hot-water supply systems are never recommended in conjunction with electric storage heaters, and should be disconnected if present on an old system.

Servicing

Electric water heaters require very little and only infrequent service.

The muddy water near the bottom of the tank should be flushed out periodically, by means of the valve provided at the bottom of the heater.

With tank temperatures of 150°, tank life, which used to be considered more limited than the remainder of the heater, can now be expected at times to be as long as the life of other parts. However, in many models the tanks are replaceable. About the only other parts to get out of order are the controls, whose poor functioning would be indicated by incorrect water temperatures. Trouble with the heating element is usually indicated by a humming sound in the interior of the heater; if that occurs, the heating element may need to be removed and cleaned.

Operating Costs

According to a study of the one year records of over 400 water heaters, a Pennsylvania utility company estimates the operating requirements of various sizes of water heaters as in Table II.

Table II

Electrical Consumption of Automatic Water Heaters, kwhr. required per month (for urban and suburban dwellers)

Size of family (persons)	1	2	3	4	5-6-7
Average	190	230	270	310	350
Higher Income*	255	310	365	420	475

*Use this group for estimating in all cases where maid service is used.

These consumption estimates may be converted to dollars per month by multiplying by the rate per kilowatt-hour for water heating as obtained from the local electric company, or from past bills.

Manufacturers' Recommended Retail Prices of Electric Automatic Storage Water Heaters

Nominal Tank Capacity (Gallons)	Galvanized Tank: Clark	Frigidaire	Homart	Hotpoint	Norge	Pemco	Rex	Rheem	Sepco	Westinghouse	D. W. Whitehead	"Glass Lined": Permaglas	Homart
Note	a	b	b	b	b	a	a	b	b	b	b	b	b
Single Heating Element Models													
30	$112	$100	$85	$115	$100	$116	$108	$100	$—	$112	$100	$150	$105
40	122	118	—	125	118	—	117	114	—	123	—	—	—
50	130	127	113	140	127	131	126	127	—	138	120	185	135
66	153	151	—	155	150	—	153	—	—	157	—	—	—
80	179	170	—	180	170	166	170	—	—	177	155	240	—
100	206	—	—	—	—	—	187	—	—	—	—	—	—
Double Heating Element Models													
30	120	115	98	125	114	120	115	113	117	123	110	160	118
40	132	124	—	135	124	—	128	124	—	133	—	—	—
50	140	134	125	150	134	140	136	137	138	148	135	193	150
66	166	161	—	165	160	—	163	162	—	167	—	—	—
80	195	180	155	190	180	185	183	184	180	187	175	250	190
100	230	—	—	—	—	—	214	—	—	—	—	—	—

a—F.O.B. Factory
b—Delivered East of Mississippi but not installed.
(All prices are approximate and subject to local conditions and taxes; they are, however, useful in a comparative sense even though they may not be *directly* applicable, in some cases, at the present time.

A. Recommended

On brands marked with a dagger (†), magnesium anodes for increased resistance to rust and corrosion were available for installation at extra cost.

Clark (Clark Water Heater Division, McGraw Electric Co., 5204 W. 65 St., Chicago 38) Round models, 5[1] to 150 gal.; square, 30 to 67 gal.: table-top cabinet model, 30 gal.; also an 18[1] gal. cabinet model. Built-in "*Ionodic*" magnesium anode claimed to prevent corrosion and to double tank life. Convenient external temperature-control knob. Ten year guarantee of both heater and tank, with manufacturer's willingness to apply this even under adverse water conditions, considered very desirable feature.

Duraclad (A. O. Smith Corp., Milwaukee 1) 30 to 80 gal. zinc lined (galvanized). Same as *Permaglas*, with exception of material of tank lining.

Frigidaire (Frigidaire Division, General Motors Corp., Dayton 1, Ohio) Round, 15[1] to 80 gal.; Table-top cabinet model, 30 gal.; "glass-lined" (vitreous enamel) models in 30, 50, and 80 gal. sizes available at extra cost. Equipped with either one or two sickle-shaped internal heating elements offering longer lengths of element, to give lower element temperatures and longer life than the common short elements operating at higher temperatures.

[1]Units under 30 gal. not recommended for general household use. (See under *C. Not Recommended.*)

Homart (Sears, Roebuck & Co., Chicago) 30, 50, and 80 gal., round, available with either zinc (galvanized) or "glass" lining (additional charge for latter). Use of pedestal base improves appearance but reduces insulation value somewhat. 10-year guarantee, a very desirable feature.

†*Hotpoint* (Hotpoint Inc., 5600 W. Taylor St., Chicago 44) 15[1] to 82 gal., round; 30 gal. table-top model. All thermostats and heating units are of the "clamp around" type (usually considered less efficient than immersion type, but on actual tests, the *Hotpoint* units operated with satisfactory efficiencies.

†*Hubbell* (The Electric Heater Co., 105 W. 40th St. N.Y.C.) 2[1] to 150 gal., round, with immersion heaters and thermostats. Also available with copper tanks at extra cost. Due to steel shortage, current models being supplied with aluminum jackets. (Lighter in weight and non-rusting, but less able to withstand the physical abuse likely in many locations.) Manufacturer would not quote recommended retail prices.

L & H (A. J. Lindemann & Hoverson Co., Milwaukee 7) 30 to 80 gal., round. Models 50 gal. and below have 3½ in. of insulation and models 66 and 80 gal. 4 in., as against 3 in. on most competitive models.

Norge (Norge Division, Borg-Warner Corp., 670 E. Woodbridge St., Detroit 26) 30 to 82 gal., round. Pedestal bottom, neat in appearance, but considered difficult to insulate; tests, however, indicated very satisfactory efficiencies.

†*Pemco* (Philadelphia Electrical & Manufacturing Co., 1200-36 N. 31 St., Philadelphia 21) 30 to 80 gal., round. Mercury tube snap-action thermostats used, insulation of type considered desirable, 3½ in., thicker than average. Copper tank models also available at extra cost. One year guarantee, shorter than several other makes offering specific guarantees.

Permaglas (A. O. Smith Corp.) 30 to 80 gal., round, with pedestal bases and "glass-lined" tanks. While this type of lining undoubtedly reduces rust and corrosion and thus prolongs life, the cost of these models is from $45 to $70 higher than the average of competitive models with galvanized tanks, which seem quite unwarranted increments. As the zinc-coated tanks give very satisfactory results wherever the water is held at a maximum of 150°, it is considered questionable whether it is justifiable to pay the extra amount unless the water conditions are very bad or unless, for some exceptional reason, it is necessary to carry water temperatures materially higher than 150°.

†*Piedmont Heatmaster* (Combustion Engineering Co., Chattanooga 2, Tenn.) 30 to 80 gal., round. One year guarantee. Only 230-volt models are recommended.

†*Rex* (The Cleveland Heater Co., 2310 Superior Ave., N.E., Cleveland) 30 to 100 gal., round; 30 to 66 gal., square "*Nu-Mode*"; 30 gal., table-high (cabinet). A built-in pressure-temperature relief valve as standard equipment is a feature of considerable merit. Unusually good construction as to instalation. Heavy tank used.

Rheem (Rheem Manufacturing Co., 11 W. 42 St., New York 18; distributed by General Electric Supply Co.) 5[1] to 82 gal., round; 30 gal., table-top model. Also a series 700, 12-gal. hand-filled model for use on farms where piped water is not available. Dial control of thermostat. Pedestal base. Five-year guarantee.

†*Sepco* (Automatic Electric Heater Co., Pottstown, Pa.) 15[1] to 80 gal. round and square models, 30 gal. table-top model. Heating elements located in vertical well running through the center of the heaters, which facilitates removal of the units without disturbing casing or insulation. Special helical type diffuser for the incoming cold water. Immersion type snap-action thermostat. Thermostat well includes built-in safety fusible plug. Copper- and glass-lined tanks also available at higher prices.

Thermowatt (John Wood Mfg. Co., Conshohocken, Pa.) 30 to 100 gal., round. Built-in cold- as well as hot-water traps. *Chromolox* units. Immersion thermostats. Pedestal bases.

Universal (Landers, Frary & Clark, New Britain, Conn.) 30 to 82 gal., round; 30 to 86 gal., square; 30 gal. table-top, built as a companion to electric range. Cold- as well as hot-water heat traps built-in. Thermostat readily adjustable. Actual tests showed very satisfactory performance, including a draw-off of 93% of the storage tank capacity before the water temperature dropped 30°. The standby loss was also low, being only 89 watts in 63 hours.

Westinghouse (Westinghouse Electric Co., Appliance Division, Mansfield, Ohio) 10[1] to 80 gal., round; 30 and 40 gal. table-top models. Well constructed, with sickle-shaped heating elements to permit use of longer, lower temperature elements (see *Frigidaire* listing). Manufacturer recommends that change in thermostat setting be made by authorized serviceman.

D. W. Whitehead (D. W. Whitehead Mfg. Co., Trenton 8, N.J.) 30 to 120 gal., round. Also make an "Instant-Hot" dairy heater. Copper tanks available at added cost. *Chromolox* element. Adjustable thermostat. Painted exterior, considered inferior to baked enamel of most other makes. Otherwise, models are well constructed and designed.

C. Not Recommended

Any models under 30 gal. While several manufacturers list smaller units, CR feels that their use should be restricted to attachment to single appliances or, at the most, single bathrooms or kitchens. As a single laundering requires from 12 to 35 gal. of hot water, a tub bath up to 15, even 25 gal., the 5 to 20 gal. heaters are almost sure to prove inadequate at times, whereas at a moderate additional cost a larger, more serviceable model can usually be installed.

Piedmont Heatmaster, 115-Volt Models (230-volt models are listed *A. Recommended*). Lower-voltage models are in conflict with industry standards which call for 240-volt ratings.

Brief Wear Tests of General Electric VR and Pickering, Model 120M, Pickup Cartridges

General Electric

THE *General Electric Variable Reluctance* (magnetic) cartridge, which was tested originally by CR in 1946 and reported in the November 1946 BULLETIN, has been found consistently to give better initial fidelity than some others selling at several times its price of $4.67, and considering its low first cost, it is judged undoubtedly the best buy of all pickups for consumer use. In tests which were made to determine the characteristics of the pickup as purchased new, frequency response was found favorable in both the model originally purchased about two years ago, and in the newer models which differ from it in minor respects. Users who have a high-fidelity sound system and play top-grade records a great deal are surprised to find how quickly this and other sapphire stylus pickups develop distortion.

For CR's tests, a Columbia 10004 Frequency Test Record was used as a means for determining the amount and type of distortion developed. Three new *GE* cartridges were purchased, and played on recordings of American Salute (Victor 11-8762). With the first cartridge, it was found that after 200 plays on records (with each record played not more than 50 times before changing to a new one), the second-harmonic distortion, especially that between 3000 and 7000 cycles, reached extremely high values, which would be noticeable and objectionable with high-fidelity amplifier and speaker equipment. (At frequencies below 1500 cycles, distortion remained unobjectionable after 300 plays.) Changes in third-harmonic distortion with wear were negligible.

In another test with a second cartridge played 850 times (new record surface after each 50 to 100 plays), second harmonic distortion was considerably increased over that already reported (27% at 6000 cycles after 850 plays compared with 16% after 300 plays in the first test). The test showed that maximum distortion by the cartridge occurs when it is used and worn, on new records. If most of the records in the user's record library are likely to be played less than 50 times each, it would seem reasonable to suggest that a new cartridge should be placed in service at the end of not more than 200 plays. For the non-critical user or for one whose equipment does not provide high-fidelity (wide-range) reproduction, deterioration caused by use of the cartridge will be much less noticeable, and replacement of the cartridge after 200 to 300 plays will not be necessary (except from the standpoint of producing minimum wear on valuable records).

In the final test, the third cartridge was played 500 times on a single surface of a 12-inch record which was new at the start of the test. The distortion for frequencies of 1500 cycles and above at the end of the test was on the average little or no worse than was the distortion produced by the first cartridge tested at the end of 50 playings. and at lower frequencies, distortion was comparable with that of the first cartridge after 300 playings—still unobjectionable.

All three pickup cartridges used showed similar initial characteristics of frequency response and voltage output and no significant changes were noticed in these respects at the finish of the tests. A needle pressure of 1¼ oz. was used for all tests.

The conclusions drawn from the tests are that maximum deterioration of the cartridge, which is believed due to wear of the stylus will occur in cases where it is used to "break in" new records. The results of the tests show good agreement with observations as to the point of incipient noticeable distortion reported by a music-lover who used the same pickup and played many new records with it.

Pickering

THE pickup cartridge was tested to determine the approximate amount of use that can be expected before the amount of distortion becomes objectionable. All tests were made with the pickup installed in an automatic record changer, with needle pressure adjusted to 1.5 ounces.

Output voltage, harmonic distortion, and frequency response of the new *Pickering* cartridge were measured using Columbia 10004-M and *Clarkstan* Sweep Frequency test records. The pickup then was subjected to 700 playings, using a new record at the start and after each 50 playings; 14 new surfaces were used in all. Measurements were made after 150, 300, 500, and 700 playings

The results were similar to those obtained in the test on the *General Electric* pickup. Below a frequency of 300 cycles (about E above middle C), second harmonic distortion did not increase enough

during the entire test to be objectionable. Greatest measured increase in distortion was at approximately 6000 cycles, where the rise was from about 7% for the new cartridge to 12% after 150 playings, 17% after 300, 19% after 500, and 22% after 700. Third-harmonic distortion remained substantially constant throughout the test.

A critical listener will probably find deterioration sufficient to justify replacement of the stylus by return of the pickup to the manufacturer, after something over 150 surfaces have been played (on a strictly high quality sound system): a less critical listener may find that he can play 300 or more record sides before replacement. On a mediocre sound system, a good many more plays would give tolerable reproduction.

The cartridge can be returned to the manufacturer on a trade-in basis for replacement of the stylus, at a net price of $5.

★ ★ ★ Corrections and Emendations to Consumers' Research Annual Cumulative Bulletin (ACB) and Monthly Bulletins ★ ★ ★

Hand Dishwashing Compounds
Col. 251-252
ACB '48-'49

Transfer listings of *Lan-o-Sheen* and *O.D. Wonder Wash* from *B. Intermediate* to *C. Not Recommended. Lan-o-Sheen* contained naphthalene or a derivative and *O.D. Wonder Wash* contained sand. Neither ingredient is desirable in a product sold for dishwashing. ¶Transfer listing of *Maid Easy* (col. 252) from *B. Intermediate* to *A. Recommended.* For the corrected statement of composition of the product see correction to Oct. '48 BULLETIN, p. 14, col. 1.

Shampoos
Col. 326
ACB '48-'49

Delete the whole of the second sentence of the sixth paragraph, beginning "In hard-water sections" and insert in its place: In hard-water sections, if rain-water is not available soften the water by adding 1 level teaspoon of tetrasodium pyrophosphate to 1 gal. of water.

Toilet Soaps
Page 16-17
Aug. '48

Amplification Note: *Packer's Tar Soap* was rated *C. Not Recommended* in CR's report on 20 brands that appeared in CONSUMERS' RESEARCH BULLETIN, August 1948, pages 16-17. The soap failed to meet Federal Specifications for Milled Toilet Soap, P-S-621a, in that it contained rosin. Phenolic compounds were also present. The manufacturer has asked us to point out that the resinous and phenolic compounds found in the analysis made for CR to be present in the soap are only those which are natural constituents of the Pine Tar used (which is asserted to be of U.S. Pharmacopoeia grade).

Dishwashing Compounds
Page 14
Col. 1
Oct. '48

Through an error by the chemist in transferring data from a large file on the subject, the composition of *Maid Easy* was erroneously stated. The composition of this product has since been found to be: 14.2% tetrasodium pyrophosphate; 13.4% sodium tripolyphosphate; 24% sodium bicarbonate, anhydrous; 19% sodium carbonate, anhydrous; 12.3% sodium sulfate; 10.1% sulfonated detergent of a superior type; and 7% water of hydration. The rating of *Maid Easy* should be changed from *B. Intermediate* to *A Recommended*, for hand dishwashing.

Anti-freeze
Page 21
Nov. '48

Under *Denatured Alcohol*, delete listing of *Super Pyro*. This product, which was formerly an ethanol base anti-freeze, is now methanol (poisonous) and is therefore not recommended by CR. The practice of many manufacturers of significantly changing the nature and composition of a product without notice to consumers and without changing the brand name is a downright injustice to consumers and may be a danger to some who continue to purchase the product in the belief that they are obtaining the same type with the same properties as to safety, etc., as they bought previously. Subscribers are warned to check the labeling and color of all brands of anti-freeze before purchase even though they may have been listed as *A. Recommended* by CR, as no guarantee can be given that the product, though sold under the same brand name, will not have been changed from the type investigated and recommended by CR without the manufacturer's or dealer's giving any sort of notification to the purchaser of such a change. Methanol (wood alcohol), properly labeled, carries a skull and crossbones poison warning, is plainly marked "POISON," and is normally colored a strong violet hue to distinguish it from other anti-freeze materials.

(Continued on page 33)

Corrections and Emendations

(*Continued from page 32*)

Fire Alarm Device
Page 26
Jan. '48

The *Fire Warden*, made by Premier Appliance Co., Inc., of New York, has been found to have a serious defect which would appear to reduce greatly any value it may have been judged to possess as a fire alarm. The fusible links designed for a temperature of 117° to 120°F (colored blue) are not sufficiently strong to support the weight of the device for a long period. A gradual elongation of the sides of the link occurs, until after a period of several months the link breaks, without exposure to fire or heat, and the device operates as though in the presence of a fire. Such a false action of the device could be a source of great trouble and alarm in the home, or of danger, perhaps, to an ill or infirm person. (There may be some doubt about the permanence of the red link (145-150°) also, as some signs of cold flow are apparent in it, also, after 10 months.)

Test of Another *LongWear* Shirt

A Brand Marketed by New Process Co.

IN the April 1948 BULLETIN, on page 19, there appeared a report of a test of a white madras *LongWear* shirt. This shirt, sold by the New Process Company, a mail-order firm of Warren, Pennsylvania, was rated *C. Not Recommended* because its collar had a poor appearance after five launderings and a very poor appearance after twelve.

Some time later another white shirt was bought from this same company. This particular shirt was constructed of a single-ply-yarn cotton broadcloth which had a satisfactory thread count. Its tensile strength was low in both warp and filling direction for a broadcloth of this type. The fabric in this shirt had probably been pre-shrunk, for tests showed that the shrinkage was small. The shirt, however, had been cut large and the collar, as a matter of fact, was somewhat larger than marked size after laundering.

The collar of this shirt, too, failed early in the test as did the collar of the *LongWear* previously tested. Its appearance after three launderings was only fair, and after five launderings was poor. CR considers that shirts which have collars which fail so early are definitely undesirable, for they have lost their usefulness for dress wear when such a failure occurs.

It has been known for some time that the so-called fused collars are sometimes unsatisfactory because of blistering or separation with laundering. Some fused collars, however, have held up rather well in test and have given every indication of giving good service in use. (See columns 164-165 of the 1948-1949 *Annual Cumulative Bulletin* for listings of some *A-Recommended* shirts, with fused collars.)

We have been apprised indirectly that the manufacturer will replace any shirts that fail in this way. This is a commendable policy, but from the consumer's standpoint an even more commendable one would be for the New Process Company to institute a continuous quality control policy to guard against this or any other important type of failure in its shirts.

The rating is cr49.

C. Not Recommended

LongWear (New Process Co., Warren, Pa.) $2.95. Thread count, average, 138 x 59. Type *1b* broadcloth, according to the Tentative Specifications for Bleached Cotton Broadcloth of the American Society for Testing Materials. (Type *1b* broadcloths are superior to Type *1a* and are fine, closely woven, durable fabrics that launder well; Type *1a* fabrics have fewer yarns per sq. in., and the requirements for tensile strength are not so high.) Appearance, good, but slightly neppy (said of yarns having a bunched or knotty appearance to some degree). Weight of fabric per sq. yd., 3.4 oz. Tensile strength, average: warp, 72 lb.; filling, 21 lb. (below Specification limits in both warp and filling). Appearance of fused collar after three launderings, fair; after five launderings, poor. 1

The *Breath-o-lator*, a "Breath-Modifier"

A NEW PRODUCT called a *Breath-o-lator* (Sigma Products Corp., 41 E. 42 St., New York 17) has recently been advertised for use in "correcting bad breath." The device consists of a metal case in which is inserted a paper impregnated with volatile oils of strong, and it is believed, to many, quite unpleasant, odor. The device is sold at $1 ("Neutragen" refills, 3 for 25 cents). The advertising exhibits two certificates: one from a testing laboratory in New York City which reported favorable operation of the device and its odorous material in respect to whiskey breath, tobacco-smoke breath, limburger-cheese breath, garlic and onion breath. The promoter's claim in his advertising is broader: "get a *Breath-o-lator* and you will never have to worry about bad breath again . . . . eliminates all traces of onion, garlic, limburger, tobacco, liquor, halitosis." The second certificate is that of a dentist, J. F. Cavanagh, who reported doing considerable research on the oils used in this device and asserted that the material acts as a germicidal agent and "cleanses the mouth and oral mucosa of dormant bacterial colonies with absolutely no harmful effects to the mucous membrane." Dr. Cavanagh's report, unfortunately, read more like a testimonial than a scientist's report of an objective examination of the product.

In view of the fact that merely breathing fumes is not bactericidal so far as bacteria present in the mouth and throat is concerned, and unpleasant breath can, of course, result from conditions that are not confined to diseases of the oral cavity, the advertising is misleading in saying that the *Breath-o-lator* "gets at the cause of this odor."

The odor characteristic of the product is presumably supplied by an "active agent" called "Neutragen. . . a new scientific wonder." The reader may suppose that *Neutragen* is some new scientific discovery, but actually it is just the maker's name for something that provides the smell or other characteristics he prefers, a technique not unfamiliar in advertising. (As with: "Irium — the remarkable new ingredient contained only in *Pepsodent*"; "Solium . . . a revolutionary development in the art of soap-making.") It is well always to be suspicious of advertising which claims an ingredient for a product which is not a generic, well-known substance, but is itself a proprietary material. If consumers would remember this simple principle, a lot of advertisers would have to operate in terms of substantial claims instead of on the basis of plays upon words, as is done in the Irium-Solium-Neutragen school of advertising.

If the claim of germicidal action appeared in the labeling of the product, it would be regarded as a drug and would be required to bear a listing of the ingredients, and it would also be subject to legal action under the Drug section of the Food, Drug, and Cosmetic Act, if the germicidal properties could not actually be demonstrated in carefully controlled tests.

The consumer, however, is justified in being at least doubtful about products whose label claims differ greatly from claims made in advertising and sales literature, remembering that the labeling claims are under control of public authorities, whereas claims in advertising literature may escape the supervision or close attention of Food and Drug Administration officials. The best rule perhaps is to believe only the claims that are *clearly and explicitly set forth* on the label, and if the label does not say much, one is fairly wise in assuming that the product may not *do* very much of anything. In a word, disregard what the advertising says and keep your mental focus upon what the manufacturer or promoter claims in a clear, unhedging fashion upon the label (which is subject to scrutiny and, if necessary, legal control by experts).

In general, judgment of the *Breath-o-lator* device must be that the consumer should not expect too much from it, and he may decide for himself after spending his dollar whether its odor is more unpleasant than that which he is trying to cover; and we believe he should read the advertising literature with a somewhat skeptical mind until better proof of performance is offered than that which came with the sample purchased by CR.

Ratings of Motion Pictures

THIS section aims to give critical consumers a digest of opinion from a wide range of motion picture reviews, including the motion picture trade press, leading newspapers and magazines—some 19 different periodicals in all. The motion picture ratings which follow thus do not represent the judgment of a single person, but are based on an analysis of critics' reviews.

The sources of the reviews are:

Box Office, Charm, Chicago Daily Tribune, Cue, Daily News (N.Y.), *The Exhibitor, Harrison's Reports, Motion Picture Herald, National Legion of Decency List, Newsweek, New York Herald Tribune, New York Times, Parents' Magazine, Release of the D.A.R. Preview Committee, Successful Farming, Time, Variety* (weekly), *Weekly Guide to Selected Motion Pictures* (National Board of Review of Motion Pictures, Inc.), and *Unbiased Opinions of Current Motion Pictures* which includes reviews by the General Federation of Women's Clubs, the American Legion Auxiliary, National Film Music Council, and others.

The figures preceding the title of the picture indicate the number of critics who have been judged to rate the film A (recommended), B (intermediate), or C (not recommended) on its entertainment values.

Audience suitability is indicated by "A" for adults, "Y" for young people (14-18), and "C" for children, at the end of each line.

Descriptive abbreviations are as follows:

adv—adventure
biog—biography
c—in color (Technicolor, Cinecolor, Trucolor, Magnacolor, Vitacolor, etc.)
car—cartoon
com—comedy
cri—crime and capture of criminals
doc—documentary
dr—drama
fan—fantasy
hist—founded on historical incident
mel—melodrama
mus—musical
mys—mystery
nov—dramatization of a novel
rom—romance
soc—social-problem drama
trav—travelogue
war—dealing with the lives of people in wartime
wes—western

A	B	C		
—	5	6	**Abbott & Costello Meet Frankenstein**	*com A*
—	6	2	**Accused, The**	*cri-mel A*
2	5	4	**Act of Murder, An**	*dr A*
—	4	5	**Adventures of Gallant Bess**	*wes-c AYC*
—	—	6	**Angry God, The**	*dr-c A*
1	11	1	**Apartment for Peggy**	*dr-c A*
—	1	3	**Appointment With Murder**	*cri-mel A*
—	—	3	**Arkansas Swing, The**	*mus-com AYC*
—	3	3	**Assigned to Danger**	*cri-mel AY*
2	7	8	**Babe Ruth Story, The**	*mus-biog AYC*
—	2	2	**Back Streets of Paris**	*mel A*
—	—	3	**Back Trail**	*wes AYC*
—	3	10	**Bad Sister**	*nov A*
—	4	2	**Behind Locked Doors**	*mel A*
—	3	4	**Belle Starr's Daughter**	*wes A*
—	2	1	**Bells of the Old City**	*com-c A*
—	—	4	**Betrayal, The**	*mel A*
1	4	11	**Beyond Glory**	*dr A*
—	6	4	**Big Punch, The**	*dr A*
—	—	7	**Big Town Scandal**	*mel AYC*
—	11	2	**Black Arrow, The**	*adv AY*
—	4	3	**Black Eagle**	*dr A*
—	2	8	**Blanche Fury**	*mel-c A*
—	2	1	**Blazing Across the Pecos**	*mus-wes AYC*
—	1	7	**Blind Desire**	*dr A*
—	3	3	**Blonde Ice**	*mel A*
—	7	3	**Blood on the Moon**	*wes A*
—	4	5	**Bodyguard**	*mel AY*
—	3	1	**Borrowed Trouble**	*wes AYC*
—	3	1	**Boy with Green Hair, The**	*fan AYC*
—	1	5	**Bungalow 13**	*mys-mel A*
—	10	3	**Canon City**	*doc-cri-mel A*
—	2	3	**Carson City Raiders**	*wes AYC*
—	5	1	**Cesar**	*dr A*
—	3	2	**Champagne Charlie**	*mus-com AY*
—	4	4	**Checkered Coat, The**	*mel A*
—	1	3	**Clandestine**	*war-dr A*
—	1	6	**Cobra Strikes, The**	*cri-mel A*
—	5	4	**Code of Scotland Yard**	*cri-dr A*
1	8	1	**Coroner Creek**	*wes-c A*
—	4	1	**Corridor of Mirrors**	*dr A*
—	4	2	**Counterfeiters, The**	*mel A*
—	1	4	**Countess of Monte Cristo**	*mus-com A*
—	1	5	**Creeper, The**	*mel A*
2	12	3	**Cry of the City**	*mel A*
—	2	5	**Daredevils of the Clouds**	*mel AY*
—	13	4	**Date With Judy, A**	*mus-com-c AY*
—	1	2	**Dead Don't Dream, The**	*wes AYC*
—	12	4	**Deep Waters**	*dr-c AYC*
—	3	—	**Desperadoes of Dodge City**	*wes AYC*
—	1	4	**Disaster**	*cri-mel A*
—	7	9	**Dream Girl, The**	*com A*
—	10	—	**Dude Goes West, The**	*wes-com AYC*
—	4	3	**Dulcimer Street**	*dr A*
—	1	4	**Dynamite**	*mel AY*
—	2	1	**Eagle With Two Heads, The**	*dr A*
2	16	1	**Easter Parade**	*mus-com-c AYC*
—	6	5	**Embraceable You**	*cri-mel A*
3	13	2	**Emperor Waltz, The**	*mus-com-c AY*
—	4	7	**End of the River**	*dr A*
—	7	7	**Escape**	*nov A*
—	6	1	**Every Girl Should Be Married**	*com AY*
—	3	2	**Eyes of Texas, The**	*mus-wes-c A*
—	6	5	**Feudin', Fussin' and A-Fightin'**	*mus-com AYC*
—	4	—	**Fighter Squadron**	*war-mel-c A*
—	1	4	**Fighting Back**	*mel AYC*
—	—	3	**First Opera Film Festival**	*mus-dr A*
—	—	3	**Foolish Husbands**	*com A*
—	8	9	**For the Love of Mary**	*mus-com AY*
4	10	4	**Foreign Affair, A**	*mus-com A*
—	5	—	**Four Steps in the Clouds**	*com A*
—	3	2	**Fric-Frac**	*com A*
—	4	2	**Friend Will Come Tonight, A**	*war-mel A*
—	5	6	**Gallant Blade, The**	*mel-c AYC*
—	6	2	**Gallant Legion, The**	*mus-wes AYC*
—	5	4	**Gay Intruders, The**	*com A*
—	2	6	**Gentleman from Nowhere, The**	*mys A*
—	2	5	**Girl from Manhattan, The**	*com AY*
—	12	3	**Give My Regards to Broadway**	*mus-com-c AY*
—	1	3	**Golden Eye, The**	*cri-mel AY*
—	9	10	**Good Sam**	*com A*
8	5	1	**Hamlet**	*dr A*
—	2	11	**Hatter's Castle**	*mel A*
—	6	—	**He Walked By Night**	*cri-mel A*
—	2	3	**High Fury**	*dr A*
—	9	1	**Hills of Home**	*dr-c AYC*
—	8	7	**Hollow Triumph**	*mel A*
—	—	4	**Honorable Catherine, The**	*com A*
—	3	5	**I, Jane Doe**	*mel A*
—	4	3	**I Surrender Dear**	*mus-com AY*
—	1	7	**I Wouldn't Be in Your Shoes**	*cri-mel A*
—	2	3	**Illegals, The**	*doc-dr A*
—	3	3	**In This Corner**	*mel A*
—	3	—	**Indian Agent**	*wes AYC*
—	—	3	**Inner Sanctum**	*mys-mel A*
—	6	8	**Innocent Affair, An**	*mus-com A*
—	4	9	**Isn't It Romantic?**	*mus-com A*
—	4	2	**Jinx Money**	*mys-mel AY*
5	7	2	**Joan of Arc**	*dr AY*
—	5	—	**Joe Palooka in Winner Take All**	*mel AY*
2	13	2	**Johnny Belinda**	*dr A*
1	13	6	**Julia Misbehaves**	*com A*
1	9	2	**June Bride**	*com A*
—	—	4	**Jungle Goddess**	*dr AYC*
1	5	1	**Jungle Patrol**	*war-mel A*

A	B	C		
3	8	3	**Key Largo**	*mel A*
—	6	1	**Kidnapped**	*mel AYC*
—	—	3	**King of the Bandits**	*wes AYC*
—	1	5	**King of the Gamblers**	*mel A*
—	5	5	**Kiss the Blood off My Hands**	*cri-mel A*
—	4	3	**Kissing Bandit, The**	*mus-com-c A*
—	2	2	**Ladies of the Chorus**	*mus-com A*
—	—	6	**Lady at Midnight**	*mys-mel AY*
1	9	4	**Larceny**	*mel A*
—	3	4	**Leather Gloves**	*mel A*
—	4	4	**Let's Live a Little**	*com A*
—	4	2	**Long is the Road**	*propaganda-dr A*
5	6	—	**Louisiana Story**	*mus-doc AYC*
—	8	6	**Loves of Carmen, The**	*dr-c A*
—	1	2	**Loves of Casanova**	*mus-dr A*
—	1	5	**Loves of Don Juan, The**	*dr A*
—	10	5	**Luck of the Irish, The**	*fan AYC*
—	5	11	**Lulu Belle**	*mus-mel A*
—	9	6	**Luxury Liner**	*mus-com-c AYC*
—	—	3	**Lysistrata**	*dr A*
1	3	6	**Macbeth**	*dr AY*
—	4	1	**Man from Colorado, The**	*wes-c AY*
—	8	4	**Man-Eater of Kumaon**	*mel A*
1	1	1	**Marius**	*com A*
—	2	4	**Marriage in the Shadows**	*war-dr A*
—	2	2	**Marshal of Amarillo**	*wes AYC*
3	10	4	**Melody Time**	*mus-car-c AYC*
—	3	1	**Merry Chase, The**	*com A*
—	5	3	**Michael O'Halloran**	*dr AYC*
—	4	6	**Mickey**	*mus-com-c AYC*
—	2	4	**Million Dollar Weekend**	*mus-mel A*
—	6	5	**Mine Own Executioner**	*mel A*
—	4	1	**Miracle in Harlem**	*mus-mel-c A*
—	2	3	**Miraculous Journey**	*mel-c AYC*
—	11	1	**Miss Tatlock's Millions**	*com A*
—	1	2	**Mlle. Désirée**	*dr A*
—	3	1	**Monte Cassino**	*war-dr AY*
—	2	6	**Moonrise**	*dr A*
—	1	4	**Mozart Story, The**	*mus-dr A*
—	11	3	**Mr. Peabody and the Mermaid**	*fan A*
—	4	4	**Murderers Among Us**	*war-dr A*
—	3	1	**Music Man**	*mus-com AY*
—	3	7	**My Dear Secretary**	*com A*
—	3	4	**My Dog Rusty**	*dr AY*
—	5	3	**Mystery in Mexico**	*mys-mel A*
—	2	4	**Nails**	*dr A*
—	11	8	**Night Has a Thousand Eyes**	*mel A*
—	6	4	**Night Wind**	*dr AY*
—	5	—	**Nighttime in Nevada**	*mus-wes-c AYC*
—	5	7	**No Minor Vices**	*com A*
—	7	1	**Northwest Stampede**	*mel-c AYC*
—	3	1	**Not Guilty**	*mel A*
—	3	—	**Olympic Cavalcade**	*doc AYC*
—	9	8	**On An Island With You**	*mus-com-c AY*
—	7	9	**One Touch of Venus**	*mus-fan A*
—	1	5	**Out of the Storm**	*mys-mel AY*
—	8	3	**Paleface, The**	*mus-com-c A*
—	—	3	**Partners of the Sunset**	*mus-wes AY*
—	—	3	**Phantom Valley**	*mus-wes AYC*
1	10	4	**Pitfall, The**	*mel A*
—	1	4	**Plot to Kill Roosevelt, The**	*cri-mel A*
—	4	3	**Plunderers, The**	*mus-wes-c A*
—	3	3	**Portrait of Innocence**	*dr A*
—	1	2	**Prairie, The**	*hist-nov A*
—	2	5	**Private Life of An Actor**	*biog A*
—	5	1	**Quiet Weekend, A**	*dr AY*
—	2	12	**Race Street**	*cri-mel A*
—	8	7	**Rachel and the Stranger**	*mus-dr A*
—	2	2	**Racing Luck**	*dr AYC*
—	—	3	**Range Renegades**	*mus-wes AYC*
—	8	4	**Raw Deal**	*cri-mel A*
—	6	1	**Razzia**	*mel A*
6	10	1	**Red River**	*wes-dr A*
2	5	5	**Red Shoes, The**	*mel-c AY*
—	7	1	**Return of October, The**	*com-c A*
—	4	8	**Return of the Bad Men**	*wes AYC*
—	4	—	**Return of Wildfire, The**	*wes-c AYC*
—	8	7	**Road House**	*mus-mel A*
—	4	2	**Rocky**	*dr AYC*
—	6	2	**Rogues' Regiment**	*war-mel A*
—	12	1	**Romance on the High Seas**	*mus-com-c A*
—	3	2	**Room Upstairs, The**	*dr A*
—	11	6	**Rope**	*cri-dr-c A*
—	—	3	**Rosalni**	*mus-biog A*
—	3	3	**Rusty Leads the Way**	*dr AYC*
—	2	5	**Ruy Blas**	*hist-dr AY*
1	9	8	**Saxon Charm, The**	*dr A*
—	7	10	**Sealed Verdict**	*war-dr A*
5	8	—	**Secret Land, The**	*doc-c AY*
—	1	6	**Secret Service Investigator**	*cri-mel AY*
—	1	3	**Shanghai Chest, The**	*mys-mel AY*
—	1	4	**Shed No Tears**	*cri-mel A*
—	1	5	**Showtime**	*mus-com A*
—	1	4	**Singin' Spurs**	*mus-wes AYC*
—	2	1	**Sinister Journey**	*wes AY*
—	7	4	**16 Fathoms Deep**	*mel-c AY*
—	1	5	**Smart Girls Don't Talk**	*cri-mel A*
—	2	1	**Smugglers Cove**	*mel AY*
3	6	4	**Snake Pit, The**	*mel A*
—	8	10	**So Evil My Love**	*cri-mel A*
—	5	3	**So This Is New York**	*com A*
—	9	2	**Sofia**	*mus-mel-c A*
—	2	1	**Son of God's Country**	*wes AYC*
—	8	9	**Song is Born, A**	*mus-com-c A*
—	2	2	**Song of Idaho**	*mus-wes AY*
—	11	7	**Sorry, Wrong Number**	*mel A*
—	3	—	**S.O.S. Submarine**	*war-doc AY*
—	8	6	**Southern Yankee, A**	*com AYC*
—	—	5	**Spirit and the Flesh, The**	*nov A*
—	5	3	**Spiritualist, The**	*mys-mel A*
—	1	4	**Stage Struck**	*cri-mel A*
—	9	3	**Station West**	*mus-mel A*
—	—	4	**Strange Mrs. Crane, The**	*cri-mel A*
—	2	4	**Strange Victory**	*doc A*
1	16	—	**Street With No Name, The**	*cri-mel A*
1	7	3	**Symphonie Pastorale**	*dr A*
2	10	6	**Tap Roots**	*dr-c A*
—	3	7	**Texas, Brooklyn and Heaven**	*com A*
—	9	9	**That Lady in Ermine**	*mus-com-c A*
1	3	1	**They Are Not Angels**	*war-dr A*
—	3	4	**Thirteen Lead Soldiers**	*cri-mel AY*
2	7	4	**Three Musketeers, The**	*dr-c AY*
—	6	1	**Thunderhoof**	*mel-c A*
—	2	4	**Timber Trail, The**	*mus-wes-c AYC*
—	11	5	**Time of Your Life**	*com A*
—	2	3	**Tragic Hunt**	*dr A*
—	2	1	**Trail to Laredo**	*mus-wes AYC*
—	1	6	**Train to Alcatraz**	*mel A*
—	—	3	**Triggerman**	*wes AYC*
—	1	7	**Triple Threat**	*dr AYC*
1	4	1	**Twisted Road, The**	*cri-dr A*
—	7	5	**Two Guys from Texas**	*mus-com-c AY*
—	1	3	**Under California Stars**	*mus-wes-c AYC*
—	7	4	**Unfaithfully Yours**	*com A*
—	2	5	**Untamed Breed, The**	*wes-c A*
—	6	11	**Up In Central Park**	*mus-com A*
—	2	5	**Urubu**	*adv A*
—	—	5	**Vacation Days**	*mus-wes AYC*
—	3	7	**Variety Time**	*mus-com AY*
—	8	8	**Velvet Touch, The**	*dr A*
—	1	9	**Vicious Circle, The**	*cri-dr A*
—	10	2	**Walk a Crooked Mile**	*mel A*
—	6	5	**Wallflower**	*com A*
—	5	10	**Walls of Jerico, The**	*dr A*
—	2	4	**West of Sonora**	*mus-wes AYC*
—	1	2	**When Love Calls**	*mus-dr A*
—	7	3	**When My Baby Smiles at Me**	*mus-com-c A*
—	2	4	**Where Words Fail**	*mus-dr A*
—	—	3	**Whispering City**	*mys-mel A*
—	—	3	**White Stallion**	*wes AYC*
—	—	4	**Will It Happen Again?**	*war-doc A*
—	5	1	**Winner's Circle, The**	*dr-c AYC*
—	—	3	**Without Prejudice**	*dr A*
—	12	1	**You Gotta Stay Happy**	*com A*
—	3	—	**Your Red Wagon**	*dr A*

The Consumers' Observation Post

(Continued from page 4)

rently produced. We interpret this last to mean that if you say you have switched to Kools, you shouldn't be caught smoking Camels.

* * *

THOSE POTATOES which are piling up on the government's hands because of current farm price support policies have become quite a problem. The government supports the price; taxpayers and consumers foot the bills; and the farmers continue, naturally, to produce more high-cost potatoes than consumers can afford to buy. One of the latest headaches to U. S. Department of Agriculture officials is the discovery that they are in effect subsidizing Canadian growers of potatoes which last fall were flooding U. S. markets at a lower price than domestically-grown spuds. Their hope of restricting Canadian potatoes ran smack into the administration's widely-heralded advocacy of freer world trade. This next year, the U. S. Department of Agriculture announces, potatoes will be supported at a lower level.

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THE NEW CAPSULE CURL PREPARATIONS are currently causing an advertising sensation from coast to coast. Large advertisements in newspapers throughout the country seem to suggest that some new magic has been discovered that will produce lasting waves simply and inexpensively. The craze started on the West Coast, according to Tide magazine, and has moved east. By November 1, 1948, there were said to be 25 manufacturers in the field, and sales were reported to be "terrific." The formulas of the various brands are, of course, trade secrets, but Tide reports that one of the ingredients most of the capsule makers admit using is citric acid. One product was found to contain ferrous sulfate,

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ferric subsulfate, and citric acid; another, ferric ammonium citrate and citric acid; still a third was found by CR to be ferrous lactate and malic acid. Citric acid has been a common ingredient of hair rinses, to give a slight glint to the hair, but we know of no published scientific evidence to justify the use of an iron salt in a preparation designed to assist the process of setting waves. One commercial source has suggested that the use of a preparation containing iron might prevent the hair from taking a good permanent wave for months. At any rate, Tide reports that the fad is waning on the West Coast, where it first began, which may indicate that the miracles wrought were in the number of capsules sold at a high price rather than in the quality and nature of the curls produced.

* * *

RECENTLY TESTED:

Saf-T-Dri Stocking Shell is available at notion counters of many department stores and gift shops at $1.95 in clear plastic; $2.95 in pearl plastic. It is a handy gadget for drying stockings in the bathroom, to be attached to the wall by two screws. It folds flat against the wall to resemble a seashell when not in use. When it is pulled down at right angles to the wall, it provides 9 slots into which wet hose and lingerie may be slipped and allowed to drip into the bathtub. It has been found in practical use to be quite satisfactory, and properly mounted over the tub, it will prevent considerable drip on the bathroom floor and eliminate cluttering up of the towel rack with wet hose.

Utility Dish (Tri-State Plastic Moulding Co., Henderson, Ky.), a small round container with fitted cover for storing leftovers, sells for 10 cents in variety chain stores. It holds about 2/3 cup, is transparent, made of a plastic called Styron. The dish may be purchased singly or in sets of two or more each with its own cover. Dishes can be stacked one on top of the other since the bottom of one fits snugly into the top of the other. They have proved to be quite convenient in actual use for storing small dabs of food. For large families where leftovers of food are often sizable, however, they would likely be too small to be practical, although a larger size, priced at 15 cents, is also available.

Tap-Icer (Tap-Icer Co., Box 635, Wilkes-Barre, Pa.) at $1.50 is a simple gadget for breaking ice cubes. It is essentially a lens-shaped piece of aluminum about 1-1/2 inches in diameter fastened to a spring steel strip, with hollow aluminum handle or grip. In use, the rounded portion of the aluminum knocker is struck against the cube of ice held in the palm of the hand. This simple tool was surprisingly effective and did a rather good job of ice crushing with none of the danger present when an ice pick is used. The price ($1.50) is judged to be out of line for what is furnished, in view of its simplicity, but most people perhaps do not consider price too closely in buying a gift or novelty article.

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Phonograph Records

By Walter F. Grueninger

Please Note: In the ratings AA indicates highly recommended; A, recommended; B, intermediate; C, not recommended.

ORCHESTRA

Britten: *Peter Grimes — Four Sea Interludes.* London Symphony Orchestra under Sargent. 4 sides. Columbia Set MX 303. $3.50. Descriptive pieces from the opera which stand on their own feet. No attempt to overpress the orchestra but every effect desired by the composer seems to come through. Resonant, wide range recording nearly as brilliant and as clear as English Decca Set 50 which includes these numbers and the *Passacaglia*. **Interpretation AA**
Fidelity of Recording A

Lecocq: *Mlle. Angot Suite.* Philharmonic-Symphony Orchestra of New York under Kurtz. 4 sides. Columbia Set MX 305. $3.50. Dances similar to those of Offenbach but inferior to them. Muddy, low volume-level recording and audible surfaces. The fidelity of Columbia's *Long Playing* pressing — one side of ML 4083, $4.85 — is somewhat clearer and offers unobtrusive surfaces. When played with a laboratory pickup, the fidelity of Kabalevsky's *The Comedians*, overside on the LP, is exceptionally high. **Interpretation A**
Fidelity of Recording B

Mendelssohn: *Symphony No. 4* ("Italian"). Boston Symphony under Koussevitzky. 6 sides, RCA Victor Set 1259. $4.75. A brilliant work, one of Mendelssohn's finest. Long a specialty of Koussevitzky whose marvelous recording of more than a decade ago (Victor Set 294) sounds just about as effective as this one and the older surfaces are less audible than today's. **Interpretation AA**
Fidelity of Recording A

Rimsky-Korsakov: *Scheherazade.* Philadelphia Orchestra under Ormandy. 10 sides, Columbia Set 772. $7.25. Standard repertoire based on themes of the East suggesting "fairy tale wonders." Ormandy offers the refinement and sonority the piece demands, topping the Monteux-Victor Set 920 in performance and in recording which is outstanding. The newly designed album is a box, with bound-in pockets, that helps keep out dirt. My *Long Playing* pressing (ML 4089, $4.85) was slightly warped but in no way did this appear to affect the fidelity which is cleaner and more transparent than the standard set. Is it eleven barks of a dog — mayte Victor's terrier — that I hear near the close of the violin cadenza in the final grooves of the LP record? They are not discernible in the standard pressing. **Interpretation AA**
Fidelity of Recording AA

Vivaldi: *Le Quattro Stagioni.* Orchestra of the Accademia di Santa Cecilia under Molinari. 12 sides, Cetra-Soria Set 107. $12.04. Charming, early eighteenth century tone poems depicting the four seasons. For maximum enjoyment, play one season per sitting! The expert performance is offset, somewhat, by Italian recording with severely limited top and by audible surfaces. **Interpretation AA**
Fidelity of Recording B

CONCERTO

Chopin: *Concerto No. 2.* Malcuzynski (piano) with the Philharmonia Orchestra under Kletski. 8 sides, Columbia Set 776. $6. A weak concerto at best. Malcuzynski plays sentimentally whereas Rubinstein, in Victor Set 1012, plays with the dash and brilliance I prefer. Both recordings are excellent. **Interpretation A**
Fidelity of Recording AA

Rachmaninoff: *Concerto No. 2.* Cyril Smith (piano) with the Liverpool Philharmonic Orchestra under Sargent. 10 sides, Columbia Set 774. $7.25. Popular, warm, lyric concerto. Smith melts in the songful passages but lacks energy and facility in the fast ones. Smooth recording, though not widest range. In rapid, loud passages the piano gets lost in the orchestra. Side one clicks, other surfaces are satisfactory. Rubinstein-Victor Set 1075 remains my first choice though there is better rapport between Smith and the Liverpool Philharmonic. Honorable mention goes to Rachmaninoff-Victor Set 58 for the definitive performance, though oldish recording. **Interpretation A**
Fidelity of Recording A

Williams: *Concerto for Oboe and Strings* (5 sides) & **Milan:** *Pavana* and *Giga* (1 side). Mitchell Miller with the Saidenberg Little Symphony under Saidenberg. Mercury Set 7. $5.23. Vaughan Williams here recalls Debussy and others before him and moves around leisurely — not great music, of course, but pleasing. The performance is all anyone could hope for. The recording is exceptionally wide range (up to 14,000 cycles per second, the album liner states) and the surfaces are nearly silent. **Interpretation AA**
Fidelity of Recording AA

CHAMBER AND INSTRUMENTAL

Beethoven: *Sonatas Op. 12, Nos. 1 and 2.* Heifetz (violin), Bay (piano). 6 sides, RCA Victor Set 1254. $4.75. Gay, early works. Spirited, high order ensemble playing. Full, clear recording with commendable balance between instruments. **Interpretation AA**
Fidelity of Recording AA

Beethoven: *Variations on a Theme by Diabelli.* Leonard Shure (piano). 14 sides, Vox Set 636. $9.75. Very likely the greatest set of variations (33) ever composed. Shure plays with comprehension and dexterity. Acceptable, studio type recording. Some audible surfaces. **Interpretation AA**
Fidelity of Recording A

Liszt: *Sonata in B Minor.* Gyorgy Sandor (piano). 6 sides, Columbia Set 786. $4.00. Rhapsodic, dramatic work many pianists program because it is sure fire. Sandor makes the most of it. Satisfactory recording. Yet, when I use a laboratory pickup, I hear less surface noise, wider dynamic range and more high frequencies on Columbia's *Long Playing* pressing. **Interpretation AA**
Fidelity of Recording A

Moussorgsky: *Pictures at an Exhibition* (7 sides) & *By the Water* (1 side). Horowitz (piano). RCA Victor Set 1249, $6. A masterpiece describing ten paintings. Horowitz has edited the numbers in an effort to present them more nearly as written originally. Performance — loud and electrifying. Recording — quite remarkable. On the whole, likely to supersede the Brailowsky-Victor Set 861 which buzzed in many loud passages, due to overcutting. **Interpretation AA**
Fidelity of Recording AA

Scarlatti: *Six Sonatas.* Horowitz (piano). 4 sides, RCA Victor Set 1262. $3.50. A breath of fresh air! Short, elegant pieces likely to appeal to a wide audience. They were written for the harpsichord and I prefer them on that instrument. Otherwise — clean, thrilling performance, bright recording and some surface noise. **Interpretation AA**
Fidelity of Recording AA

VOCAL

Marian Anderson Sings Spirituals (contralto). 8 sides, RCA Victor Set MO 1238. $5. Self-effacing performance by a great artist of a wide variety of spirituals. Beautifully reproduced except for one noisy surface. **Interpretation AA**
Fidelity of Recording AA

English and French Folk Ballads. Peter Pears (tenor). 6 sides, London Set 30. $3.94. Principally unfamiliar British songs arranged by Benjamin Britten who plays the piano here. Pears' diction and musicianship pass muster but his voice is not particularly pleasing. Well recorded.
Interpretation A
Fidelity of Recording AA